

THE AMERICAN JOURNAL OF PHARMACY.

JUNE, 1879.

GLYCERIN—ITS EARLY MANUFACTURE IN THIS COUNTRY.

BY ROBERT SHOEMAKER.

I have thought it might be interesting to the readers—especially the younger portion—of the “Journal,” to be told something of the introduction of this manufacture in the United States.

I claim to have made the first glycerin, produced for sale, or as an article of commerce, in this country, and it came about in this wise.

In the year 1837 I commenced, in this city, the preparation of the plasters of the U. S. Pharmacopœia, and sold them (chiefly in rolls of half a pound) to the druggists in this city, first, and afterward throughout the country. Machine spread plasters (except adhesive, on cloth) came later, and I may have something to say of these in a future paper.

The base of all, or nearly all, of these plasters was emp. plumbi, of which I manufactured large quantities.

About the time my late much-esteemed friend, Wm. Procter, Jr., was preparing the matter for his “Mohr, Redwood and Procter’s Pharmacy,” he asked permission to examine my apparatus for the manufacture of lead plaster, with a view of writing an article for his forthcoming book. This request I freely granted, and the result of his visit to my laboratory may be found on page 420, etc., of that book, edition of 1849. At the time of the visit of Mr. Procter we were busily engaged in dipping out the newly made emp. diach., and cooling it by kneading and pulling in cold water. This water, when it became warm, was allowed to run to waste, carrying with it what glycerin it had extracted from the plaster.

Mr. Procter asked me if I could not make him some glycerin, “at least enough for a specimen for the class,” adding, “here is a great waste.” I had often tasted the water sweetened by the glycerin, but

as there was at that time no demand for the article, this "waste" was allowed.

I at once set about producing the specimen for Prof. Procter. As near as I can remember, taking about five gallons of water in which lead plaster had been kneaded and cooled, I turned it into an evaporating pan (jacketed), passed on the steam, keeping it below the boiling point, evaporated the fluid to the consistence of a thin syrup. Transferring this to a glass vessel, a current of sulphuretted hydrogen was passed through it, to precipitate the oxide of lead held in solution, then filtered it, and my glycerin was completed. Of this, my first effort, I sent Mr. Procter a part, retaining the balance, which was often shown as a curiosity.

This was about the year 1846. Although glycerin had been discovered by Scheele more than 60 years before that time, it had not come into use (at least in this country), and there was no demand for it.

After this (about 1848) I made a larger quantity, it having been recommended in a French medical journal as a curative in pulmonary affections. The paper was translated, and appeared in one or more of our medical journals; it came to be prescribed by some of our physicians.

Looking back over my books, I find the first entry charging glycerin under date of "6th mo. 1st, 1848," and this was to Edward Parrish, then at the northwest corner of Chestnut and Ninth streets. The quantity was small, only $\frac{1}{4}$ lb., and the price charged was \$4.00 per lb. The next sale was to a New York house, at same price, and for a larger quantity. The entire product sold in 1848 was about 15 lbs. In 1849 I reduced the price to \$3.00 per lb., and it remained steadily at this figure until near the close of 1850, when it fell to \$2.75. The quantity sold in 1849 was about 200 lbs. The demand rapidly increased, and in 1850 the quantity sold was much larger, but I find no charge at a less price than \$2.70 per lb.

I find sales entered to druggists (beside those in this city) in New York, Boston, Providence, Baltimore, Louisville, New Orleans, etc. The greatest demand, however, came from our own wholesale houses, the manufacturing chemists being the largest buyers. Glycerin now began to be imported from England (Price's), and sold at a price below what it cost me to produce it, and so I gradually ceased to make it. This English article was made from "soap liquor."

When I first commenced making glycerin, the quantity of lead plaster manufactured gave me for one or two years all that I needed; but soon I made the plaster for the sake of the glycerin alone; and I remember at one time I had many hundredweight of plaster, in mass, from which I had taken the glycerin, and for which there was no sale, so that the *plaster* and not the *glycerin* became the refuse product.

In looking over my books for facts connected with this article, my mind was saddened by reading the names of many who thirty years since were actively engaged in the prosecution of their profession, but who now "sleep the last sleep." Referring to a few in our city alone, I meet such names as Charles Ellis, Edward Parrish, Wm. Procter, Jr., Elias Durand, Frederick Brown, Tristram Needles, Joseph and John Reakirt, Frederick Klett, John K. and George K. Smith, Edward and Charles Yarnall, Geo. D. Wetherill, the Roberts, Lennigs, Cressons, and many others.

It is an interesting study, comparing the small beginnings as related above (only a generation back) with the immense production of glycerin at the present day. So far as I am informed, all that I made and sold was used medicinally, either internally administered or in form of lotion or unguent.

At this day, vast quantities are used in the manufacture of nitroglycerin, dynamit, duallin and other explosives. The perfumers are large consumers, also the confectioners. Large quantities are used for the preservation of fruits and meat, as well as in the preparation of chewing tobacco.

But the greatest demand comes, perhaps, from the brewers. It is estimated that over 40,000 pounds is drank annually in beer in this country alone; and instead of my old price of \$4.00 per lb., an article quite as good can now be produced for 18 cents per lb.

Philadelphia, April, 1879.

ON THE MIXTURE OF CHLOROFORM AND ETHER.

BY WM. H. GREENE, M.D.

A mixture of chloroform and ether has long been employed as an anæsthetic, and discussion has frequently arisen as to the proportions which should be employed and the properties of the mixture. The second of these questions may be decided by experiment.

When ether and chloroform are mixed there is an elevation of temperature, and the greatest heat is produced when the mixture is made in equi-molecular proportions. 43 grams of ether at 20°C. being mixed with 60 grams of chloroform at the same temperature, the temperature of the mixture rises to 35°. The ether should be anhydrous, otherwise the mixture will be turbid. There is but little contraction in volume, and it may be supposed that molecular combination takes place between the ether and chloroform.

The mixture may, however, be separated into its constituents by fractional distillation. It begins to boil at 50 to 51°, and several fractionations are necessary. When it is allowed to evaporate spontaneously, both substances pass into vapor together, and the composition of the mixture does not sensibly change. It burns with a smoky flame, the chloroform burning with the ether. These facts seem to show that an unstable molecular compound is formed, as suggested by the late Dr. Atlee, who preferred the mixture to all other anæsthetics in his practice.

ON THE PREPARATION OF ETHYL BROMIDE.

BY WM. H. GREENE, M.D.

As bromide of ethyl has recently attracted some notice as an apparently safe and agreeable anæsthetic, having all of the advantages of chloroform without producing the nauseating effects which render ether unpleasant, an easy process for its preparation may be acceptable to pharmacists, for the compound is not now in the market.

Most cheaply prepared by the action of bromine on alcohol in presence of amorphous phosphorus (Personne), ethyl bromide so made possesses a slightly garlicky odor, almost impossible to get rid of; this is possibly due to a trace of ethylphosphine or a phosphinic ether, but however this may be, the product has been objected to on account of the odor.

The process recommended by de Vrij, the action of a mixture of strong sulphuric acid and alcohol on potassium bromide yields a product contaminated with ordinary ether, and as ethyl bromide and ether boil at 40° and 35° respectively, the ether cannot be removed. This contamination is avoided if the sulphuric acid be dilute, and the following process gives satisfactory results in the preparation not only of ethyl bromide but of other alcoholic bromides:

Twelve parts of coarsely powdered potassium bromide and eleven parts of sulphuric acid, diluted with its volume of water, are heated in a retort or flask fitted to a condenser; as soon as hydrobromic acid begins to be disengaged, twelve parts of alcohol are allowed to flow in slowly, as in the preparation of ether. Ethyl bromide distills over with a small quantity of water and some alcohol. The distillate is agitated with water to remove alcohol, the ethyl bromide separated and dried by potassium carbonate, which at the same time neutralizes any free acid. It needs no further purification. About eight parts of ethyl bromide should be obtained. It should be kept in the dark like all other etherial compounds containing chlorine, iodine or bromine.

ON ABIETENE.

BY SAMUEL P. SADTLER, PH. D.

In the April number of this journal I gave a short preliminary notice of a hydrocarbon that had been given me as coming from *Pinus ponderosa*. It seemed to be the same as Wenzell's abietene, from *Pinus sabiana*, described in this journal (March, 1872, p. 97), agreeing with it in all the tests applied. I therefore took steps to procure a larger portion of the abietene, meaning to investigate it fully. In the meantime Prof. Thorpe has given the results of a study made by him upon the same material. These results are summarized below. I will therefore abandon my proposed examination of the abietene, as the subject has been sufficiently and thoroughly settled by Prof. Thorpe's investigation.

EXTRACT FROM "CHEMICAL NEWS," APRIL 25TH, 1879.

"On Heptane from *Pinus Sabiana*," by T. E. THORPE. In the "Pharmaceutical Journal," March 30, 1872, W. Wenzell described, under the name of Abietene, a new hydrocarbon obtained by distilling the exudation of the *Pinus sabiana*, a tree indigenous to California, known locally as the nut pine, or digger's pine. To procure the exudation, the tree during winter is notched and guttered at a convenient height from the ground. The resin on distillation yields the liquid hydrocarbon. The crude oil is met with in San Francisco as an article of commerce under the names of abietene, erasine, etc., as a substitute for benzolin, for removing grease spots, etc. It is a nearly colorless mobile liquid, of a powerful aromatic smell, resembling that of

oil of oranges. Wenzell contrasts its characters with those of terebene from *P. Sylvestris*. Abietene, sp. gr. 0.694, boils at 101°, dissolves but a small quantity of hydrochloric acid gas, and is but little attacked by cold nitric acid. Terebene, sp. gr. 0.840, boils at 160°, absorbs HCl with avidity, and is violently attacked by nitric acid. From a consideration of the general properties and behavior of this hydrocarbon the author of the present paper concluded that it was likely to be a paraffin. The occurrence of a paraffin playing the part of oil of turpentine in the vegetable kingdom was hitherto unheard of, the only natural sources of this hydrocarbon (heptane) being petroleum and fossil fish-oil. The author, therefore, obtained from Mr. Wenzell two gallons of the abietene, and has subjected it to a most exhaustive chemical and physical examination, the details of which are contained in the paper. The crude oil is slightly contaminated with a resinoid matter, to which its smell is due. The pure oil boils at 98.42°C. at 760 mm. It has the composition of heptane, containing 83.85 per cent. C, 16.03 per cent. H (C_7H_{16} requires C 83.97, and H 16.03). Vapor density—found, 49.94; calculated, 50.07; sp. gr. at 0° 0.70057. The rate of expansion by heat has been carefully determined; its volume at the boiling-point is 1.1411. Its specific volume 162.54; refractive index for D, 1.3879; its molecular refractive energy, 56.4. Rotates in a tube 200 mm. +6.9'. Its viscosity and surface tension were also determined. The author has compared the heptane obtained from *P. Sabiana* with the heptane from petroleum and that obtained by heating azelaic acid with baryta. The sp. gr. of the heptane from petroleum is 0.7301; that from azelaic acid has a sp. gr. of 0.700. These heptanes are believed by Schorlemmer to be identical. The author is at present engaged in an investigation of this point.

MINIM PIPETTES.

By E. R. SQUIBB, of Brooklyn.

In the last number of the "Journal" Mr. Drew controverts the statements of this writer in the preceding number by skillfully dividing the subject of the devices for minim pipettes, and claiming only that which he figured. This subject would not be at all worth discussing for itself alone, or for any credit involved. But as there is a moral principle involved, it seems necessary for this writer to say again, more

distinctly, that it is the very device figured and described by Mr. Drew which does not belong to him in any sense whatever, except that he was the first to think it worthy of being made the subject of a published note.

Had this been the first time that Mr. Drew had overlooked mentioning in his published papers what was due to others, no notice would have been taken of it; but while he was employed by this writer, Mr. Charles Rice drew our attention jointly to the foreign notices of phenol-phtalein as an indicator in acidimetry, and gave to this writer a specimen of phenol-phtalein for trial. One of the results of this was a paper by Mr. Drew, published in this journal for November, 1878, in which the previous use of phenol-phtalein as an indicator is alluded to, if at all, in so equivocal a manner that in the republications of Mr. Drew's article he gets credit for what does not belong to him, while the common courtesy of acknowledging our joint indebtedness to Mr. Charles Rice, of Bellevue Hospital, for his information and his supply of phenol-phtalein is entirely omitted.

Again in this journal for December, 1878, is an article by Mr. Drew on Sodium Salicylate, the whole substance and value of which, if there be any, belongs to this writer. Mr. Drew asked this writer for permission to publish this working process, and permission was willingly and cheerfully given him. But his moral sensibility should have guarded him from publishing it entirely as his own, when it was not his own in any other sense than in being permitted to publish it.

Brooklyn, May 9th, 1879.

NOTE.—With the above communication we consider this controversy closed.—EDITOR AMER. JOUR. PHAR.

MERCURIAL OINTMENT.

BY PHIL. HOGAN, PH.G.

During the month of April I had occasion to make some mercurial ointment, and, being in a hurry, had resort to the following process: First, extinguished the mercury by triturating with about one-tenth of its weight of old mercurial ointment and a small quantity of the lard. During the trituration allowed the suet and the remainder of the lard to melt, and then strained. By the time the mixture became almost stiff

with cooling, the mercury was extinguished, and, to complete the process, it was only necessary to add the mixture of fats to it and thoroughly mix. The above process gave a smooth, uniform ointment of proper consistence. We would just say that the idea of rubbing the mercury with the old ointment is not original with us, having tried it on the authority of the U. S. Dispensatory; but we believe the plan of melting the fats together, straining, and adding to the extinguished mercury when they are almost stiff, has never before been mentioned. It certainly facilitates the process and gives a very fine preparation.¹

VALUATION OF BLISTERING BEETLES.

BY LEVI FAHNESTOCK, PH.G.

(Abstract from an Inaugural Essay.)

In undertaking a series of experiments on this subject, old Chinese blistering beetles were first treated by the process of Prof. Procter, as modified by Fumouze. 200 grains of powdered *Mylabris cichorii* were exhausted with chloroform by maceration and expression, from the solution thus obtained most of the chloroform was distilled off, the residue was poured into a dish, and the retort rinsed out with a small quantity of chloroform and this added to the balance. The solution was allowed to evaporate spontaneously to the consistence of a thick extract, which was treated with bisulphide of carbon; a large quantity of fatty matter was taken up by the solvent, but a considerable quantity of foreign matter was left behind with the cantharidin. This impure cantharidin was then dissolved in a small portion of alcohol, the solution passed through a filter, in order to remove a little dust, and allowed to evaporate spontaneously; the cantharidin was obtained in slightly purer crystals, but still of a dark-brown color, and weighed 2.8 grains.

This strange insolubility of a portion of the fatty matter in bisulphide of carbon is entirely at variance with the experiments of Prof. Maisch, conducted by the same process and on the same lot of beetles about six years ago, at which time he obtained the cantharidin almost white without purification. It was concluded, therefore, that the solubility of the fatty matter had become impaired by the age of the beetles, as no particular precaution had been taken to preserve them. 200 grains of the

¹ The process described is that of the German Pharmacopœia.—EDITOR.

powder were now exhausted with acetic ether by displacement, about six fluidounces of percolate being obtained. The greater part of the acetic ether was distilled off and the balance allowed to evaporate spontaneously. The residue was treated with bisulphide of carbon, which dissolved a portion of the fatty matter, but a considerable quantity remained undissolved, as in the former case. The residue was dissolved in hot alcohol, from which, on cooling, 1.3 grain of much purer cantharidin crystallized, while that remaining in the alcohol could not be freed by simple solvents from the contaminating foreign matter.

200 grains of the powder were, according to Dragendorff's process, digested in hydrate of potassium for about fifteen minutes, the mixture treated with hydrochloric acid in excess, dried and treated by displacement with petroleum benzin, with the view of removing, if possible, the fatty matter beforehand. A dark-colored solution was obtained, from a portion of which the benzin was evaporated off, leaving the oil of a dark-brown color and of a butyraceous consistence. This was tested for cantharidin by applying a small quantity to the arm, but no effect was produced, proving the insolubility of cantharidin in petroleum benzin. The powder was then exhausted with chloroform and treated in the same manner as in the first experiment. The cantharidin obtained by this process was of a much purer form, crystalline and of a light-yellow color, and weighed 2.5 grains.

The yield and purity of the product being most satisfactory by this last process, it was adopted in the following experiments:

Cantharis vittata, the potato bug, was next examined, 150 grains of the powder being used, yielding two grains of almost pure cantharidin in rather large crystals, which, when obtained, along with the fatty matter, were long and needle-shaped, but after purification assumed a square and tabular form. This leads to the conclusion that the presence of the fatty matter changed the shape of the crystals.

Three specimens, 200 grains each of *Cantharis vesicatoria*, were next examined. The first was a sample of the fresh, two of old beetles, one consisting of the soft, the other of the hard parts of worm-eaten cantharides, the portions being separated by a sieve of ten meshes to the inch. The result was less successful, as a considerable amount of fatty matter could not be removed by the petroleum benzin, but remained intimately associated with the cantharidin, being insoluble in bisulphide of carbon and other solvents, except those which also dissolved the can-

tharidin. Filtering through animal charcoal also failed to separate it. In fact the presence of cantharidin was at first doubted altogether, as there was no appearance of crystallization. It was, however, tested by applying a small quantity to the arm, and although vesication was produced, it took a much longer time to produce the effect. It was evidently very impure.

The portion obtained from the soft parts of the worm-eaten variety weighed 5.9 grains, and that from the hard parts of same sample 2.9 grains. The fresh cantharides did not yield crystallized cantharidin, either by this or by Procter's process, and it was, therefore, concluded that the insects were really old, notwithstanding their fresh and undamaged appearance.

In summing up the results, the following points are presented:

1st. Old *Mylabris cichorii* yield 1.25 per cent., and fresh *Cantharis vittata* 1.3 per cent. of cantharidin.

2d. By age the virtues of the beetles are impaired and less effectual for vesication, and a portion of what appears to be fatty matter becomes insoluble in bisulphide of carbon, petroleum benzin, etc., rendering the isolation of cantharidin much more difficult.

3d. By the treatment with hydrate of potassium and hydrochloric acid the yield of cantharidin is increased, probably from the decomposition of ammonium and magnesium compounds of cantharidin contained in the beetles.

4th. By exhaustion with petroleum benzin a large quantity of the fatty matter, but no cantharidin, is removed, thus facilitating the subsequent operations.

SMILAX GLAUCA.

BY JOHN BLANKENHORN, PH.G.

(*Abstract from an Inaugural Essay.*)

With the view of ascertaining the constituents of the long cylindrical light-colored rhizome, a sample furnished by Prof. Maisch was submitted to the following treatment: Two pounds of the ground rhizome were exhausted by a mixture of two parts alcohol and seven parts water, and the percolate concentrated at a low temperature. After cooling, the whole was treated with acetate of lead until no further precipitate occurred, then filtered. The filtrate, thus deprived of nearly all coloring matter, was subjected to the action of sulphuretted hydro-

gen, in order to free it from lead, and again filtered. The sulphide of lead, after thorough washing with water, was treated with boiling alcohol, filtered, the filtrate concentrated and spread on glass to scale; attempts were made at crystallization, but without success.

The precipitate with acetate of lead was thoroughly washed, suspended in water and decomposed by sulphuretted hydrogen, then filtered. The liquid was now evaporated; at first the color was dark-red, and the color of blue litmus was changed to red. Both characters became greatly augmented as the process of evaporation went on. A small quantity diluted with water gave the following reactions: With alkalis, the color was deepened; with ferric chloride, a greenish-black color; with Mayer's test, a yellowish color; with subacetate of lead, gelatinous precipitate; with solution of gelatin, gelatinous precipitate. These reactions showed the presence of tannin. After concentration to a small bulk, and setting aside for a few days, crystals of what appeared to be a magnesium compound were deposited. The filtrate from these crystals was now treated with twice its bulk of alcohol, filtered, and then found to be free from tartaric, citric and malic acids. After having been treated with ammonia and solution of alum, no precipitate was obtained with salts of iron, calcium, mercury and copper, but lead acetate occasioned a white precipitate.

The sulphide of lead remaining after the decomposition of the lead precipitate by H_2S was thoroughly washed and treated with boiling alcohol, filtered and allowed to evaporate spontaneously, then spread on glass to scale. The product was of a beautiful red color, perfectly transparent, taste slightly bitter, wholly soluble in alcohol and partially so in water, but insoluble in ether and chloroform. Ammonia dissolved it, deepening the color, and on the addition of an acid the color was discharged. A small quantity dissolved in water with the aid of alcohol, and agitated, produced copious foaming, and was precipitated by acetate of lead. On digesting with water, a portion was dissolved, and on being evaporated was left behind as a red transparent mass; the portion insoluble in water dissolved in alcohol, and after evaporation left a brown transparent mass, both portions foaming on being agitated with water.

The filtrate, after precipitation by acetate of lead, left, on evaporation, an amorphous dark red-brown mass, with a tint of green, and perfectly transparent; the taste is very bitter and slightly acrid. It is

freely soluble in alcohol and water, insoluble in ether and chloroform. With strong sulphuric acid it produces an orange-red coloration changing to brown.

The presence of starch, sugar, albumen, resin and pectic compounds was also incidentally noticed.

TULLY'S POWDER.

MANLIUS, N. Y., May 12th, 1879.

Editor of the American Journal of Pharmacy:

I was a private pupil of Dr. William Tully at New Haven, Conn., in the years 1846, 1847, 1848, and personally know that the formula given on page 230, May number of the "American Journal of Pharmacy," is the one he commonly employed, except that instead of zj he wrote ʒj . The whole amount of the three substances added to the morphia is a drachm.¹ Although commonly using the sulphate of morphia in this powder, Dr. Tully considered the acetate or hydrochlorate of morphia equally advantageous. He was very particular to direct that the ingredients should be thoroughly mixed by passing them several times through a sieve after they had been incorporated in a mortar. I may say that I have used Tully Powder (as it is called in this vicinity) largely in my medical practice, and have been well satisfied with its diaphoretic qualities. It has this advantage over Dover's Powder, that it is very much less liable to produce nausea, and that, except to the few who have a decided distaste for camphor, it is much more palatable than Dover's Powder. Children take it very readily.

No doubt the substitution of precipitated calcium carbonate, for prepared chalk, results in a somewhat handsome powder and probably does not change the medicinal effect of the combination.

Tully powder should be kept in a well-stopped bottle and in a uniform (rather low) temperature, to prevent the sublimation of some of the camphor on the sides of the bottle. Of course, doses of it, if long left in paper, are liable to lose the greater part of the camphor.

I hope to see it introduced into the next U. S. Pharmacopœia, under the name of *pulvis morphiæ comp.*, or, as Dr. Tully often prescribed it, under the name of *pulvis camphoræ comp.*, this latter designation

¹ Mr. Wood has also called our attention to the typographical error alluded to above.—EDITOR.

not giving the patient any intimation of its containing morphia, and hence sometimes securing its favorable reception when it otherwise would be rejected. I should like also to have "Tully powder" given as its English synonym, as a perpetual tribute to one who had made greater attainments in materia medica, perhaps, than any other American physician of his day.

Yours,

WM. MANLIUS SMITH, M.D.

GLEANINGS FROM THE GERMAN JOURNALS.

BY LOUIS VON COTZHAUSEN, PH.G.

Vinum Cinchonæ.—Hager suggests the preparation of cinchona wine with a menstruum consisting of 100 parts of white wine and 1 or $1\frac{1}{2}$ part of hydrochloric acid, and claims that all alkaloids will be obtained in solution, while the cinchona-red will be combined in such a manner that there will probably be no sediment whatever in the vinous macerate. Wine thus prepared augments the appetite and is an excellent tonic.—*Pharm. Centralb.*, April 3, 1879, p. 141.

Green Fluorescence of Quinidia Sulphate.—A solution of quinidia sulphate in chloroform, made by O. Hesse, possessed an exceedingly weak fluorescence at the expiration of several months; four months later it had increased considerably, and continued to do so until it became almost fully as strong as that noticed by Schaer in an old cinchonidia sulphate solution in chloroform. The quinidia had not changed to any extent. If this solution is shaken with cold water, the latter dissolves the fluorescing substance and the quinidia (as sulphate), which then can be determined by potassium iodide.—*Ber. d. Deutsch. Chem. Ges.*, xii, p. 425.

Determining the Specific Gravity of Solid Fats, Paraffin Resins, etc.—Hager melts 3 to 5 grams of the fatty substance, at a temperature not exceeding that of boiling water, in a porcelain dish having a capacity of 20 to 30 cc., and supplied with a lip, and then drops the fat carefully from a height of 2 to 3 centimeters into a layer of alcohol $1\frac{1}{2}$ to 2 centimeters in depth, contained in a glass vessel having a perfectly straight (not concave) bottom. Tallow, butter and lard solidify before they reach the bottom of the alcohol, and collect there as round globules, uniform in size if the dropping is manipulated

carefully, while cacao oil solidifies at the bottom in hemispheres; wax and paraffin also solidify less regularly. Fats soluble in strong alcohol are dropped into diluted alcohol. Resins are not melted, but merely broken into small fragments. A liquid is then prepared, either alcohol, diluted alcohol, water, glycerin or diluted glycerin being used, in which the solidified drops of fat or paraffin, or the fragments of resin float, and its specific gravity is determined.—*Pharm. Centralb.*, March 27, 1879, p. 132.

Is White Wax a Rancid Fat?—In opposition to the assertion that white wax is always rancid, K. Lauteschläger states that neither recently bleached nor old white wax has undergone considerable change in odor, color, taste or consistence, that it yields no ozone reaction, nor possesses any of the characteristic properties of rancid fats, and, therefore, ought neither to be classed with them nor to be discarded in favor of yellow wax, since it possesses the decided advantage of presenting a more elegant appearance.—*Pharm. Ztg.*, April 9, 1879, p. 220.

Adulteration of Bees-wax with Ceresin.—Buchner boils in a test-tube the wax, for a few minutes, with concentrated alcoholic potassa-lye (1 part potassium hydrate to three parts 90 per cent. alcohol), and allows the tube to remain for some time in a water-bath to prevent the contents from hardening. If the wax is pure, the solution remains clear; if it contains ceresin, this will float as an oily layer on the potassa solution, which is usually then very dark colored. The ceresin may be recognized even after congealing, it being much lighter colored than the saponified mass.—*Ztsch. d. Allg. Oest. Ap. Ver.*, April 1, 1879, p. 154, from *Ding. Polytech. Jour.*

Adulteration of Sesame Oil with cheaper oils can be detected as follows: Put 10 cc. of the oil, previously heated to 15 or 20°C. in a graduated cylinder, add carefully 4 drops sulphuric acid, shake well for several minutes, add 4 drops pure nitric acid, and shake again. Pure sesame oil is soon colored dark-green, which turns quickly into a currant-red color; if adulterated with poppy oil, cotton-seed oil or mustard oil, this coloration does not take place.—*Pharm. Ztschr. f. Russl.*, Feb. 1, 1879, p. 79.

Coffee adulterated with the Ground Seeds of Cassia occidentalis.—A lot of ground coffee recently offered at a very low figure to a military department of Berlin was examined under the microscope and

found to be adulterated with the ground seeds of *Cassia occidentalis*; this adulteration is frequently found in coffee.—*Pharm. Ztschr. f. Russl.*, Mar. 13, 1879, p. 116, from *Chem. Ztg.*

The Fresh Bark of *Myroxylon Peruiferum*, *Lin. fil.*, was submitted by Theod. Peckolt to analysis, who found in 1000 grams:

Ethereal oil,	0.900 gram	Resin,	151.970 gram
Myroxilin,	4.660	Cinnamic acid,	9.770
Balsamic extractive substance,	20.000	Benzoic acid,	a trace
Bitter extractive substance,	10.290	Tannic acid,	5.940
Tasteless and odorless substance,	1.840	Glucose,	16.120
Substance resembling wax,	5.530	Pectin substances, Dextrin }	26.040
Substance resembling albumen,	12.120	Inorganic salts, etc. }	
		Fibrous substance, moisture,	691.300

—*Ztschr. Oest. Ap. Ver.*, April 1, 1879, p. 145.

Genuine Volatile Oil of *Eucalyptus Globulus* hardly ever appears in the market, the oil being almost invariably distilled in Australia from the leaves of *E. amygdalina*, which contains more oil than any other known species of *Eucalyptus*. *E. globulus*, of which 100 pounds of leaves yield about 6 ounces of oil, grows in not easily approachable districts. The two oils resemble each other very much; that of *E. globulus* possesses, however, more therapeutical efficacy, and is alone used for making eucalyptol.—*Pharm. Ztg.*, April 9, 1879, p. 220, from *Chem. Ztg.*

Use of Pyrogallic Acid as a Hæmostatic.—Prof. Husemann calls attention to the excellent results obtained by Dr. Vesey with pyrogallic acid administered in 0.05 doses, at intervals of one or several hours, as a hæmostatic in cases of hemorrhages of the lungs and stomach, and suggests clinical experiments with it used internally, as Vesey recommends it; the author considers it a probably reliable substitute for ergot.—*Pharm. Ztg.*, April 2, 1879, p. 204.

Determination of Carbolic Acid.—E. Hoffmann places over 1 to 2 cc. pure concentrated H_2SO_4 in a test-tube an equal volume of diluted carbolic-acid solution, containing not more than 1 part in 500 parts of water, and drops several grains of powdered saltpetre into the liquid, when the presence of as little as 1 milligram of carbolic acid will be indicated by the immediate appearance of violet streaks; on shaking, the whole liquid acquires the violet color. If concentrated HCl is

used in the place of H_2SO_4 , the same color appears, but soon turns yellow. If commercial H_2SO_4 (frequently containing HNO_3) is used in place of the pure acid, the violet color appears, of course, without adding the saltpetre. The color is very constant, but is changed into reddish orange on the addition of water, because the yellow color of the nitro-derivatives appears and combines with the violet.—*Pharm. Ztg.*, March 19, 1879, p. 173.

Estimation of Free Acid in Aluminium Sulphate.—The presence of free acid in aluminium sulphate—frequently used in the arts in the place of alum, because it contains more aluminium—is very objectionable for some purposes. It may be determined, according to Wittstein, by treating the finely-powdered salt with absolute alcohol, which dissolves the free acid only.—*Ztscher. d. Allg. Oeet. Apoth. Ver.*, April, 1879, p. 152.

Poisoning by Dynamite.—A case of poisoning of a couple, indicated by violent vomiting, sudden burning pain in the head and stomach and bloody evacuations, followed by the death of the woman in two and a half and of the man in three days, was due to the presence of 30 grams dynamite in the soup and coffee, which caused severe inflammation of the stomach and bowels. Free nitric acid and traces of arsenic, the latter as an impurity of the acid, were found in the bowels.—*Apoth. Ztg.*, March 22, 1879, p. 50.

Estimation of Arsenic in Golden Sulphur (*Sulphur auratum antimonii*).—Triturate well equal parts by weight of the chemical and of sodium bicarbonate (about 1 gram of each); shake the mixture for a few minutes with cold distilled water, filter and add to the filtrate hydrochloric acid in slight excess. If arsenic is present there will be yellow precipitate.—*Pharm. Ztg. f. Russl.*, Feb. 15, 1879, p. 116, from *Polyt. Notizbl.*

Phosphorus pills for poisoning mice are made by soaking cheap small peas in warm water until they swell, when they are stirred well in a wooden vessel into a previously-prepared soft confection of phosphorus until a uniform mixture is obtained; flour is then added, stirring continually with a wooden spatula, or working the mass up with the hands until every pill appears dry and does no longer adhere to the others. Several hundred pounds of reliable pills, of uniform size, can be made thus in one hour after a little practice.—*Pharm. Ztg.* April 9, 1879, p. 220, from *Pharm. Wochenbl.*

ON COPAIBIC ACID.

By WARREN B. RUSH, PH.G.

(Abstract from a Thesis.)

In preparing copaibic acid the volatile oil must first be removed, which is usually done by distillation with steam. The oil is, however, much more readily separated on a small scale by one of the following processes: First, by dissolving ten parts of copaiva in ten parts of benzin, adding an equal part of caustic soda solution, sp. gr. 1.30, and agitating well; or, secondly, by mixing ten parts of copaiba, ten parts of alcohol and four parts of soda solution, when the mixture will separate into three layers. A third and most economical way for separating the volatile oil is to shake together three parts of the soda solution with one of the copaiva. After separation, pour off the volatile oil, decant the alkali solution, pass a stream of water over the resin, to wash off adhering particles of alkali, and let it dry. Next, dissolve the resins in benzin, and agitate the solution with very diluted hydrochloric acid until the aqueous liquid remains slightly acid to litmus. Let the mixture rest until the resin and water have separated, decant the water and evaporate the benzin solution to a thick syrupy mass, and let cool. The same resins are thus obtained which are left on the distillation of the volatile oil.

I have observed that if the percentage of oil is below 55 then the oil does not separate, there being sufficient resin to hold the volatile oil combined, and in this condition some of the latter is oxidized or altered. It may be separated from the resin by dissolving in benzin or alcohol and treating as above.

The resinous residue left after the separation of the oil contains an acid, a neutral and a soft resin. The following are among the processes for the isolation of the different *resins of copaiva*: Liquefy the resins by the heat of a water-bath, pour into about twice the weight of petroleum benzin, stir until dissolved, filter, and let evaporate spontaneously. A few particles will remain on the filter, consisting of the usual impurities. Warm the residue left by evaporation over a water-bath and pour it into three times its quantity of alcohol; or heat the alcohol to boiling, mix thoroughly, and while hot filter. The portion left on the filter is the neutral resin. Set the filtrate aside for several days to crystallize. Treat a portion of the neutral resin with hot alcohol, and if it colors

the alcohol there is left behind some of the acid resin, and may be obtained by treatment with hot alcohol, and adding the filtrate to the first.

The *neutral resin* is a yellowish powder, without taste or odor, neutral to test paper, softens in hot alcohol and is soluble in ten times its weight of hot chloroform.

After crystals have formed in the alcoholic liquid, filter, and dry on the filter paper under glass. On distilling off the alcohol from the filtrate, the *soft resin* is left behind. Copaivic acid may also be obtained from the resin by dissolving it in benzin, filtering and evaporating. The residue is heated to 200°F., dissolved in pure naphtha, filtered while warm and set aside to crystallize, after which the crystals are dried under glass.

Of the other processes which have been tried, the following deserve to be briefly mentioned :

Dissolve the oleo-resin in caustic ammonia (sp. gr. 95), and expose this in a shallow dish at a temperature below 60°F., until hardened; then dissolve in wood naphtha, crystallize and filter. Expose copaiva to the air in shallow dishes until it has become hard and brittle, dissolve it in ammonia water and leave to evaporate in a cool place; then dissolve in hot alcohol, filter and set aside to crystallize. Dissolve the resins left after the distillation of volatile oil in caustic ammonia, let evaporate, dissolve in hot alcohol, filter and set aside to crystallize. The alcohol may be partly recovered in these different processes by distillation.

The crystals cannot be easily obtained without the previous separation of the volatile oil, the acid being soluble in fixed and volatile oils. Doubtless the copaiva yielding the largest amount of resins will produce the most acid.

Copaibic acid forms soft prismatic crystals, which are soluble in strong alcohol, ether, fixed and volatile oils. Its alcoholic solution reddens litmus, is not precipitated by potassa or soda, yields with an alcoholic solution of acetate of lead a crystalline precipitate; but, on adding it to an alcoholic solution of nitrate of silver, no precipitate is occasioned until a little ammonia is added. A white crystalline powder falls, which is with difficulty soluble in alcohol but readily soluble in ammonia.

CHEMICAL NOTES.

By PROF. SAML. P. SADTLER.

Inorganic Chemistry.—*New Elements.*—L. F. Nilson, of Upsala, Sweden, in response to Marignac for chemists having in their possession large amounts of erbia to examine it for *ytterbium*, has treated some 63 grams of erbia according to Marignac's method. The molecular weight of the oxide at starting was 129.25, while the molecular weight of ytterbia, according to Marignac, should be 131. At first, by modifying Marignac's method in the application of heat to the mass of fused nitrates, he succeeded in raising the molecular weight to 130.57, but had only a small quantity brought to this degree of purity. He then carried out Marignac's method exactly, and obtained 3.5 grams of a white earth, with only the slightest trace of rose color. But this gave a molecular weight of 127.6, instead of the 131 expected, pointing to the presence of an earth of lower molecular weight. He, however, afterwards succeeded in getting a white earth that was undoubtedly pure ytterbia, having a molecular weight of 132.17.

From the white earth before alluded to, with the molecular weight of 127.6, he then succeeded in separating the oxide of a new element possessing a molecular weight of not more than 105.8. This new element he proposes to call *scandium*, because of its occurrence in gadolinite and euxenite, characteristic Scandinavian minerals. The spectroscopic characters of this element were studied, at his request, by Thalén, the eminent spectroscopist. It is characterized especially by a number of strong lines in the yellow and green of the spectrum. Its solutions show no absorption bands whatever. Taking its oxide as ScO , with a molecular weight of 105, its atomic weight would be less than 90.—*Comptes Rendus*, 88, pp. 642-648.

The Iodine Production of the province Tarapaca (Peru) has assumed large dimensions within the last few years, as a result of higher prices established by a combination of Scotch, French and Peruvian producers. At present 8 chemical factories extract the iodine from the mother liquors left after the nitre crystallization, producing 2800 centner (138 tons) of iodine, and 3 new iodine factories are building, so that the production for 1879 will probably be from 3500 to 3800 centner (182 to 187 tons). An additional factory now building in the Bolivian port Auto-Lagesta will, judging from the richness in iodine of its raw material, put on the market some 2000 centner (98 tons) more.

The methods for the separation of the iodine from its combinations in the mother liquors may be divided essentially into three classes. 1. The mother liquors, after the crystallization of the saltpetre, without further concentration, are treated with a solution of sodium sulphite, of strength corresponding to the amount of iodine present; the iodine thus separated from the sodium iodate is filtered through linen cloth, washed, pressed and sublimed. 2. The mother liquors are treated with sodium sulphite or bisulphite until the precipitated iodine is converted into HI, and this is precipitated as copper iodide by a solution of copper sulphate and sodium sulphite. 3. The percentage of iodine is increased by fractional evaporation and crystallization of the mother liquors, and then, after adding the calculated amount of sodium bisulphite, the iodine is distilled off from the acidified liquor.—*Dingler's Journal*, 231, p. 375.

In many of the hand-books reference is made to the existence of *bichromates* of baryta, lime, and some of the heavy metals as well as those of the alkalis. Ludwig Schulerud has examined this question, and has studied the precipitates, or salts, obtained with potassium chromate and bichromate respectively, in solutions of barium, lead, mercurous, silver, thallium and lithium salts. His results are as follows:

With barium salts—The precipitate obtained with potassium bichromate was slightly darker in color than that obtained with the neutral chromate, but on analysis both yielded figures corresponding to the formula BaCrO_4 .

The precipitate obtained by potassium bichromate in calcium salts was not analyzed, but appeared to be only a mixture of calcium chromate and free chromic acid.

With lead salts—The two precipitates showed almost no difference in color, and on analysis both corresponded closely to the formula PbCrO_4 .

With mercurous salts—Only the precipitate obtained with potassium bichromate was prepared for analysis. It showed a composition Hg_2CrO_4 .

With silver salts—Bichromate of potassium produced a precipitate of dark-red crystalline silver bichromate. Hot water extracts from this chromic acid, leaving silver chromate. The precipitate obtained showed the composition $\text{Ag}_2\text{Cr}_2\text{O}_7$, and after the washing gave results nearly corresponding to the composition Ag_2CrO_4 .

With thallium salts—Potassium chromate precipitates clear yellow

thallium chromate; potassium bichromate precipitates from neutral solutions a mixture of thallium chromate and bichromate, and from acid solutions exclusively orange-yellow thallium bichromate. The two salts have the formulas Th_2CrO_4 and $\text{Th}_2\text{Cr}_2\text{O}_7$, respectively.

With lithium salts—The lithium chromate and bichromate were both obtained by adding the calculated amounts of lithium carbonate to chromic acid solution, and allowing the solution after concentration to stand over sulphuric acid until the crystals separated out. Lithium chromate forms transparent yellow prisms containing two molecules of water of crystallization. The bichromate forms hard, nearly black plates, which show a red color on the edges. These crystals also contain two molecules of water of crystallization. The results, when summed up, seem to show that bichromates are only formed with monad metals, and not with dyad or tetrad elements.—*Journal für pr. Chem.*, 19, p. 36.

Organic Chemistry.—Dr. Erwin von Sommaruga has succeeded in carrying out what might be considered a difficult undertaking, viz., a determination of the *vapor density of indigo*. The formula of indigo is frequently written $\text{C}_8\text{H}_5\text{NO}$, while the formulas of many of its derivatives demand 16 atoms of carbon in the molecule. Sommaruga has now shown that the formula of indigo must be taken as $\text{C}_{16}\text{H}_{10}\text{N}_2\text{O}_2$, instead of the half of this. Carefully purified and sublimed indigo was taken, and Habermann's modification of Dumas' vapor-density method was used, the glass globe being heated in sulphur vapor, and, at the same time, nearly exhausted of air, so that the tension was only 30 to 40 mm. The figure gotten for the vapor-density was 9.45, while the formula $\text{C}_{10}\text{H}_{16}\text{N}_2\text{O}_2$ demands 9.06, and $\text{C}_8\text{H}_5\text{NO}$ demands 4.53.—*Annalen der Ch. und Ph.*, 195, p. 302.

The chemical study of the *Quebracho-bark* has engaged several chemists within the last year. These results have been transferred in part already to these pages (this Journal, 1879, pp. 152 and 192). In neither of these articles, however, has its growing importance as a tanning material been alluded to. At the late Paris Exhibition it attracted considerable attention in this connection.

According to Jean ("Bulletin de la Société Chimique," 1878, No. 28, p. 6), it contains 15.7 per cent. of a tannic acid, which, however, is not identical with quercu tannic acid, and in addition 2.8 per cent. of another astringent acid, which does not act upon the animal hide, and which behaves with reagents like gallic acid.

Arnaudon (same journal, p. 524) has also found in the quebracho-bark a coloring matter which colors fabrics a beautiful yellow. The aqueous decoction of the wood is slightly acid, of reddish yellow color when concentrated, becomes turbid on cooling, and deposits a reddish-brown substance. On boiling with dilute sulphuric acid no gallic acid is separated from the quebracho-tannic acid.

At the late Leather Exhibition in Berlin, quebracho tanned leather of different qualities was shown. Quebracho is said, under circumstances, to be quite as well adapted as sumac for the manufacture of morocco leathers, especially for such as are to be of a dark color.—*Dingler's Journal*, 231, p. 451.

M. Fileti has obtained, by the *action of bromine upon cinchonia*, in sealed tubes, a number of products, the chief one of which seems to be perbromanthracene, $C_{14}Br_{10}$. The analytical figures at least correspond very closely to this formula. Perbromanthracene has not as yet been obtained direct from anthracene, the highest brominated compound so obtained being $C_{14}Br_8H_2$. Fileti thinks that the anthracene group of atoms may constitute the nucleus of the cinchonia molecule and possibly also of quinia and other alkaloids. He promises to continue the study of this most interesting derivative, and to extend the same experiments to the alkaloids associated with cinchonia.—*Ber. d. Chem. Ges.*, xii, p. 423.

Analytical Chemistry.—F. Beilstein and L. Jarvein have described a method for the accurate *determination of zinc in the electrolytic way*. The nitrate or sulphate solution is treated with sodium hydrate until a precipitate remains, and then with potassium cyanide until a clear solution results. The platinum electrodes are now dipped into the fluid, and the current from four Bunsen cells is passed through it. If the amount of liquid is small, it becomes quite warm, in which case the beaker-glass can be cooled by placing it in a dish of water. On an average, about .1 gram of zinc will be precipitated per hour under these circumstances. When all the zinc is supposed to be precipitated, the electrodes are lifted out, which can be done without any danger of loss, the zinc is washed with water, then with alcohol and finally with ether, and dried in a dessicator.

The zinc obtained in this way can be heated for hours in an air-bath at 100° without oxydizing in the slightest degree.

After weighing, the zinc is dissolved off the electrode with hydro-

chloric or nitric acid, and the cleansed and weighed electrode is again dipped into the solution in order to see if the precipitation was complete.

The authors give an analysis of zinc sulphate, and one of brass, to show the exactness of the method.—*Ber. d. Chem. Ges.*, xii, p. 446.

THE SALIGENIN TEST FOR SALICIN.

BY DR. A. SENIER, F.I.C., F.C.S.,

Demonstrator in the Laboratories of the Pharmaceutical Society.

It is stated in text-books of chemistry that when salicin is boiled with water, acidulated with hydrochloric or sulphuric acid, it assimilates a molecule of water and is converted into glucose and saligenin. The conversion is expressed thus: $C_{13}H_{18}O_7 + H_2O = C_7H_8O_2 + C_6H_{12}O_6$. This reaction is usually commended as a test for salicin, the glucose to be detected by its well known reducing action on cupric potassium tartrate solution, and the saligenin by neutralizing and adding solution of ferric chloride, with which it gives an intense blue or purplish blue color.

The production of glucose and its detection as just indicated is a simple and certain analytical operation, but not so the formation of saligenin and the color which it gives with ferric chloride. I have experimented repeatedly under what appeared to be the most favorable conditions, but have failed to obtain a color with ferric chloride at all corresponding to that described in the text-books. Using a temperature of $80^{\circ}C$. instead of 100° a somewhat better result was obtained, but the color was so indistinct and its production so uncertain as to be useless in analysis.

Upon reference to the original memoir upon this reaction, I was surprised to find my experience both anticipated and explained. Piria,¹ in 1845, says that although saligenin is formed together with glucose when salicin is boiled with dilute acids it is nearly as soon transformed into a resinous substance, saliretin. Saliretin is insoluble in the acid solution, and is not colored blue by ferric chloride. It is formed from saligenin by the separation of a molecule of water, thus: $C_7H_8O_2 = C_7H_6O + H_2O$.

¹"Ann. de Chim. et de Physique," 1845, 259, 260.

In order to obtain saligenin Piria directs salicin to be fermented with synaptase. By this method I have obtained it in beautiful white tabular crystals. These at first appeared in the fermented mixture, from which they were separated by agitation with ether and crystallization from the ethereal solution. Prepared in this way saligenin gives the color with ferric chloride most distinctly even in dilute solution. The preparation of the synaptase and subsequent fermentation requires too much time to render this method often useful in analysis.

It appears then that the saligenin test for salicin as given in chemical text-books is untrustworthy, and that the fermentation method, though it yields saligenin, is impracticable, except when there is much time at the disposal of the analyst.—*Phar. Jour. and Trans.*, April 19, 1879.

NOTE ON PLASMA.¹

By W. WILLMOTT.

Rather more than twenty years ago, Mr. G. F. Schacht, at the suggestion of Dr. William Budd, of Bristol, prepared for trial as a substitute for oils and fats in ointments a combination of glycerin and starch, to which, after due consideration, he gave the name of "Plasma." In an admirable paper, published in the "Pharmaceutical Journal" for February, 1858, Mr. Schacht points out the advantages of this combination, and claims for it a superiority in many respects over the ordinary unguent bases. "I must, however," he states, "mention one imperfection to which these preparations (plasmas) are liable, namely, a tendency after three or four months' existence to lose more or less their original fine consistence and become softer. This is an unfortunate quality, but I think it is one for which experience will be able to suggest a remedy." About nine years later, we find Mr. T. B. Groves writing as follows: "The chief objection to plasma, of which I know little, and therefore shall say little, is that it is dear. I have heard that in use it is troublesome in consequence of its proneness to deliquescence." Nevertheless, at the same date (1867), plasma had acquired a sufficiently important position to rank with preparations of a somewhat similar character in the British Pharmacopœia, and consequently it is there introduced under the name of "Glycerin of Starch," the only

¹ Read as an evening meeting of the Pharmaceutical Society of Great Britain, April 2, 1879.

difference being that 54.68 grains of the latter ingredient are ordered to each fluidounce of glycerin instead of 70, as in the former case.

Up to the present time plasma, or glycerin of starch, has not, I believe, come largely into use, owing, no doubt, in some measure, though not entirely, to its tendency to soften by deliquescence, as already referred to; no remedy, that I am aware of, having as yet been effectually applied or suggested.¹ It may here be stated that it is to this point that the present note more especially refers.

If plasma be kept in an air-tight stoppered bottle it will retain its firm consistence indefinitely. It owes its softening property, therefore, to the large extent to which the glycerin it contains is capable of subtracting moisture from the atmosphere, the starch playing no part whatever in the change thus brought about. This property of glycerin is exercised exactly in relation to the two following conditions, namely—the amount of superincumbent moisture, and the extent of surface that may be exposed thereto. The behavior of glycerin in a very moist atmosphere is both curious and interesting. The moisture in the form of water collects and floats on its surface, and taking up or dissolving a considerable proportion of the subjacent glycerin (probably more than half its own weight), attracts more moisture, which, in turn, exercises its solvent power and acquires a capability of still further absorption. Thus the action goes on, not necessarily, as may be thought, in a constantly decreasing ratio as the water increases in amount, but at an almost uniform rate from week to week. The mixture of glycerin and water is not so actively hygrometric as the glycerin alone, but the combination once effected the action continues with singular uniformity. The following table will serve, in some measure, to illustrate this.

Hygrometric Action of Glycerin in Atmosphere Charged with Excess of Moisture.

Surface Area.	INCREASE IN WEIGHT.				Total 1 month.
	1st week.	2d week.	3d week.	4th week.	
3'1416 square inches,	56 grs.	44 grs.	48 grs.	47 grs.	195 grs.
9'6211 "	156	119	113	102	490
28'2744 "	504	341	310	315	1470

It will be seen that in each case there is a diminution of the increase

¹The glycerin of starch of the German Pharmacopœia is a step in this direction, but the water therein contained (about 1 in 12) is not nearly sufficient to rectify the hygroscopic character of the resulting mass.

of weight during the second and following weeks as compared with the increase during the first, owing, as I have said to a lessening of the intensity of absorption by the presence of the water. All this goes on without stirring or disturbing the fluids in any way. If, however, the water be kept stirred into the glycerin instead of being allowed to remain on its surface, there will be no appreciable difference in this increase of weight between the first and following weeks.

But at what point is there a pause in this process? Where does it end? In whatever proportionate quantity water may be added to glycerin, from a single drop upwards, absorption will take place in a moisture-laden atmosphere until the proportion reaches three parts by measure of the former to one of the latter. At this point the glycerin, so to speak, gives up the contest, and succumbs to the influence which the water exerts in the opposite direction. In this mixture, therefore, namely, 3 fluidounces of water to 1 fluidounce of glycerin, there will be neither attraction nor evaporation, the weight scarcely varying from week to week either in one direction or the other.

If, now, we conduct our experiments in a moderately dry atmosphere, say in the atmosphere of an ordinary working or sitting-room in which a fire is kept burning during the day, the action will be the same, but to obtain similar results the proportions will be widely different, and in fact almost reversed. Instead of 3 parts of water to 1 of glycerin we shall require nearly 3 parts of glycerin to 1 of water to reach the neutral point. Where, in one case, there is absorption and augmentation, in the other there is evaporation and consequent loss; so that in order to maintain a uniform condition in the mixed liquids the proportions must be adapted to the exact state of the atmosphere in which they are intended to be kept. In a general way, we may consider two and a half parts by measure of glycerin to one of water well adapted to meet the end in view. Bearing in mind, then, that in plasma the starch has no effect in preventing the absorption of moisture (the mass being by such means gradually undermined and softened through), we take advantage in preparing this substance of the peculiarity herein notified, and proceed accordingly. Five fluidounces of glycerin are mixed with three fluidounces of distilled water in a porcelain dish, or, preferably, transferred thereto from a vessel in which they have been previously well stirred or shaken together. The starch is then added *secundum artem*, and heat gradually applied, with constant stirring, until a trans-

lucent jelly is formed.¹ In this process the loss of weight by evaporation will be from half to one ounce, according to manipulation, thus leaving the desired proportions of glycerin and water in the resulting product.² In this way a plasma is obtained that will resist the action of moisture and retain indefinitely its firm and plastic condition. The presence of the water, so far from being objectionable, will be a decided advantage, since, in application, there will be less proneness to smarting and irritation.

The value of plasma as a substitute for fatty substances in ointments, etc., I do not now discuss, but it may be stated that Mr. Schacht continues to favor its use as a medium for the exhibition of such topical remedies as are soluble in glycerin.³ This being the case after twenty years' trial, so useful a combination should scarcely be allowed to fall into desuetude through the absence of any suggestions as regards those special properties which may tend to preserve it at all times in a suitable condition for use.—*Pharm. Journ. and Trans.*, April 5, 1879.

A MISTURA GUAIIACI IN CLEAR SOLUTION.

BY BALMANNO SQUIRE, M.B., Lond.

Surgeon to the British Hospital for Diseases of the Skin.

The unpleasant taste of guaiacum and its uninviting appearance when made into a draught are inconveniences which have long hampered a valuable remedy and are worth attempting to remove. With these impressions I paid a visit to my neighbor, Mr. Martindale, to try what could be done. The "Companion to the British Pharmacopœia" had told me that the resin was soluble in alkaline solutions, so I asked for a mixture made by rubbing down a dose of guaiacum (ten grains) with not more than a dose of liquor potassæ (℥ xx). The resin was at once dissolved almost completely, but when the solution came to be mixed with an ounce of water I found that I was baffled by the milky precipitation of probably all of the guaiacum. I then asked for a solu-

¹The stirring should be continued while the mass cools.

²In an unusually dry atmosphere the proportions should be arranged, and the process conducted so that the glycerin may exist in the plasma to the extent at least of three-fourths of the *entire weight*.

³This statement is made on the authority of a communication very kindly forwarded by Mr. Schacht in reply to the writer's inquiries.

tion of ten grains of guaiacum in a drachm of glycerin, which I was assured could not be supplied, but I pressed the experiment and so it was tried, but failed completely. I next begged a mixture of tincture of guaiacum with glycerin in equal parts; I was assured that the glycerin would act to the tincture as water would do and would at once precipitate the guaiacum, and it was pointed out to me that since the glycerin had proved its incapacity for dissolving guaiacum I might take the result for granted. However, the experiment was tried. It resulted in a perfectly clear solution. More glycerin was added, and the solution still remained perfectly clear. It therefore appears that it is possible to have a perfectly clear "mistura guaiaci," if glycerin be added to the tincture instead of water. But then, it may be asked, is the flavor any better? To this I am in a position to reply encouragingly. The pungent and nauseating flavor of the guaiacum is rendered considerably softer and altogether less objectionable. However, it might be urged that an ounce of glycerin is not quite such a trifle to swallow as an ounce of water, but this only leads me to point out another convenience of my device, and that is, a diminution of the necessary bulk of the dose, which may conveniently be reduced within the capacity of a liqueur-glass. The spirituous sweetness of the compound suggests the allusion, and the flavor of the mixture is not very distasteful. Yet another objection may arise, namely, that even if its flavor be rendered milder the remedy must nevertheless be contained in this diminished bulk of fluid in a higher state of concentration, so that when the compound gets mixed with the fluids of the stomach this fact will become manifest. But no drawback of that kind occurs. The action of a glycerin solution on the tissues is much more gradually exerted than that of an aqueous one, as any one may know who has compared the effect on a sore throat of painting it at one time with the glycerin of tannic acid, and at another with an equivalent aqueous solution of the acid, or who has tried on a patch of slightly raw skin an aqueous as against a glycerin solution of iodine of corresponding strength. I would, therefore, propose the admixture of half a drachm or a drachm of the tincture of guaiacum with one or two drachms of glycerin for a dose, and I must explain that I made use of a rectified spirit tincture and not the ammoniated tincture of the Pharmacopœia. Furthermore, I must add that the mixture of the tincture with glycerin will not bear dilution with water, which renders it turbid. If it is to be diluted it must be diluted with glycerin.—*Pharm. Jour. and Trans.*, May 3, 1879, p. 894.

FURTHER NOTES ON LIBERIAN DRUGS.

BY E. M. HOLMES, F.L.S.,

Curator of the Museum of the Pharmaceutical Society.

During the last few months further specimens of the plants used in medicine in Liberia have been forwarded to this Museum from Dr. Roberts through the kindness of Mr. T. Christy. Several of these specimens I have been able, by the assistance kindly afforded me at Kew and the British Museum, to identify, and appear to me to be worthy of placing on record, although probably none of them are possessed of very powerful properties.

It may be here noticed as a curious fact that the majority of the remedies hitherto enumerated are equally well known in the West Indies, although not always used for the same purposes in Liberia.

Erysipelas plant.—This plant is evidently *Tiaridium indicum*, Lehm. (*Heliotropium indicum*, L.), a native also of tropical Asia and America, and is one of the plants whose medicinal use seems common wherever it grows.

According to Dr. Roberts the plant is used in Liberia in the following manner: The inflamed part is fomented with an infusion of the leaves, and some of the fresh leaves are steamed or bruised into a pulp, and are applied to the part or bound round it. This is repeated twice a day and is said soon to reduce the inflammation and heat.

In the Mauritius the leaves, bruised and mixed with common salt and applied in the form of a poultice, are said to have a diuretic effect.

In Bouton's "Pl. Méd. de Maurice," p. 101, a case is related of a soldier who, on account of badly ulcerated wounds, was to have had his leg amputated, but who was cured by the external use of this plant in the form of a poultice and fomentation, the juice of the plant being at the same time administered internally. Ainslie, in his *Materia Medica*, speaks of the plant being used by the native practitioners of India as an application to gum boils and to repel pimples on the face, also in certain forms of ophthalmia. In Cochin China it is used for similar purposes, and in Jamaica, where it is called clary, it is used for cleansing and healing wounds and ulcers. Martius also speaks highly of its medicinal properties.

"Dysentery plant."—This plant is also called "Kackeis." It is a rubiaceous plant, *Oldenlandia globosa*, Hiern apparently somewhat sim-

ilar in properties to ipecacuanha. By some the heads of small pale lilac flowers are chewed, or the leaves eaten like a potherb; others, however, make a strong decoction of the plant, of which two tablespoonfuls are given three times a day.

The use of other plants of this genus is somewhat similar in other countries. Thus in Brazil one species is used for colic; in the East Indies the fresh juice of another is used in diarrhœa.¹

"Abortive plant."—This is the *Stachytarpheta Jamaicensis*, Vahl. (*Verbena jamaicensis*, L.), a native of Jamaica. This plant is said by Dr. Roberts to be used by the natives in the form of tea for procuring abortion, but he does not corroborate this statement from personal knowledge.

The plant is also a native of Jamaica, where it is used, according to Barham, under the name of vervain, as an emmenagogue, the decoction of the root being used, while the expressed juice is administered for worms in children and as a purgative. In Brazil, according to Martius, it is used for healing ulcers and internally for rheumatic affections. In that country it is known as jarbão, urgevão, or orgibão. According to St. Hilaire it is taken by some people as tea, and was at one time sent to Europe under the name of Brazilian tea. He expresses the opinion that it probably is about equal in medicinal value to the common vervain, *Verbena officinalis*; it is nevertheless largely used as a household medicine in Brazil.²

Polypodium phymatodes.—Under the name of "male fern" for the fronds bearing fructification, and "female fern" for those without sori, this plant is used in Liberia for nephritis, dysuria and other kidney complaints. It is used either in decoction or tincture, the dose of the decoction being two tablespoonfuls three times a day, and of the tincture a teaspoonful every three hours. The female fern is used for leucorrhœa and prolapsus uteri by the native women.

Cream of Tartar plant.—This is *Osbeckia rotundifolia*, Sm. (*Dissotis plumosa*, Benth.), a plant belonging to the Melastomaceæ. It is used by the natives as a diuretic and alterative in the same way that cream of tartar is used in this country.³

¹ Ainslie, "Materia Medica," vol. ii, p. 414; Martius, "Nat. Med. Brasil," p. 6; Barham, "Hortus Americanus," p. 42; Oliver, "Fl. Trop. Africa," vol. iii, p. 56.

² St. Hilaire, "Ph. usuelles des Brasiiliens," pl. xxxix.

³ Oliver, "Fl. Trop. Africa," vol ii, p. 452.

Curcas purgans.—The seeds of this well-known plant are used as a purgative and emetic, under the name of physic nut.

Anacardium occidentale.—This is called by the natives the caustic plant, the oily secretion in the pericarp being used for destroying warts, etc.

Icica species.—This resin was received from Liberia under the name of copal, but it is evidently a kind of elemi, possibly identical with the African elemi presented to the Museum by the late Dr. Ure.

Externally, the Liberian elemi seems of very inferior quality, presenting a dirty, blackish appearance, the white opaque porous resin only showing here and there. The odor closely resembles that of elemi; it is, however, very much drier and more friable than ordinary specimens of that substance. At my request, Mr. E. Fielding kindly examined it, and reports that its appearance belies its quality. The following results obtained by him show that it is a comparatively pure drug.

Resin soluble in cold Alcohol,	0.845
Resin soluble in Ether,	0.120
Black insoluble residue,	0.035

The alcoholic solution is surprisingly pale in color, no darker in fact than a solution of sandarach of equal strength, which is the more remarkable when the aspect of the crude material is considered. The black insoluble residue which, as may be seen above, forms only three or four per cent. of the elemi, on incineration and subsequent heating in the blowpipe flame, gives to the blowpipe flame the strong purplish white tint indicative of potassium, and showing almost entire freedom from sodium. When separated by filtration from the alcoholic solution and examined under the microscope, the black substance is seen to be of vegetable origin, and to consist almost entirely of fungoid or algal filaments.—*Phar. Jour. and Trans.*, April 19, 1879.

THE DISCOVERY OF MINERAL WAX, Ozocerite, in UTAH.

BY PROFESSOR J. S. NEWBERRY.

I have obtained some of the recently-discovered ozocerite in Salt Lake City from Professor J. E. Clayton, to whom also I am chiefly indebted for such information as I have in regard to its place and manner of occurrence. He writes me as follows: "The geographical

position of the ozocerite deposits is in the Wahsatch Range, on the head waters of the Spanish Fork, east from the South End of Utah Lake. The material has been found saturating beds of brown and bluish shales, probably of Tertiary age, and in masses of various dimensions, more or less mingled with clay. These shales extend from the San Pete valley in a north-northeast direction for a distance of fifty or sixty miles, and the width of the area or basin which they occupy is at the middle point about twenty miles. The shale beds richest in paraffin vary in thickness from twenty to sixty feet, but there is no considerable accumulation of that substance on the surface, nor would this be possible, as it would be destroyed by the autumnal fires which sweep the country. I examined portions of this region two years ago for coal, and found in the oil shales a few thin seams, and saw the wax-like exudation in several places, but only in small quantity."

Other parties in Salt Lake informed me that the paraffin itself is sometimes twenty feet thick, and that the quantity is enormous; but Professor Clayton says that such statements are not authorized by any facts which have come under his observation.

In the above remarks I have called the earth wax of Utah ozocerite. As it has been stated to be zietrisikite, I may say that on my return from the West, my son and assistant, Spencer B. Newberry, made a series of careful experiments in my laboratory of these hydrocarbons, and with authentic specimens which I have received directly from Galicia. He found that it had a melting point of $61.5^{\circ}\text{C}.$, that it was completely soluble in a large volume of boiling ether, and that boiling alcohol extracted from it twenty per cent. of a white wax-like substance. It seems, therefore, to be certainly ozocerite and not zietrisikite, the latter melting at $90^{\circ}\text{C}.$, and being insoluble in ether.—*Amer. Jour. Science and Arts*, April, 1879, p. 340.

CALIFORNIA HONEY.

The report that California strained honey has been largely adulterated with glucose, and accordingly condemned in English markets, naturally causes some unpleasant feeling among the bee-keepers of the Pacific coast. A producer, writing to the "*Pacific Rural Press*," offers the following test for detecting adulteration:

"Take a quantity of honey and add one part water, dissolving the

honey thoroughly by stirring. Then add alcohol of 80° until a turbidness is formed, which does not disappear on shaking. If glucose syrup is present in the honey, soon a heavy deposit of a gummy, milky mass will form, while with pure honey there will be only a very slight milky appearance observed."

The same writer says that California honey taken in May generally candies in a few days after it is extracted. Later in the season, when the air is less humid, the honey gathered is white, very thick and heavy, weighing 12 to 12½ lbs. per gallon of 231 cubic inches, and does not candy so readily, as some samples have been kept three years without any symptom of change. A different class of pasturage comes on in August and continues through the fall months; the air becomes more humid as the rainy season approaches, and the honey gathered is thinner, has more color and candies very soon, differing from April and May honey in flavor. In the Atlantic States all honey made through the entire season candies upon the approach of winter; and a large dealer in Cincinnati says all good honey becomes candied during the winter in that climate.

The San Francisco dealers rule that candied honey is reduced in value from 1 to 3 cents a pound; yet of samples of California honey sent to France, complaint was made that it was not candied, as no other could be readily sold there. The magnitude of the California honey trade may be judged from the circumstance that over 300 tons of extracted honey was produced last year in Ventura county alone. A large part of this crop was shipped direct to Liverpool for the English market. Of this shipment the writer above quoted says:

"Knowing our honey to be pure and good, and knowing the character of the shipping merchants who are transacting our business, we have an abiding faith that our product will be allowed to fairly compete in these markets with like products from other parts of the civilized world. We wait with patience the results. We have the climate, the pasturage is abundant, our bee-keepers are energetic, industrious and economical men; are determined to push our products into all the markets of the world, and we warn all men who are engaged in the production of honey elsewhere that if they cannot produce large quantities of the article that is first class, and do not put it up in an attractive form, more so than we do, they had better stand aside and admit 'the survival of the fittest' is a fixed fact."—*Sci. Amer.*, Mar. 15, 1879.

VARIETIES.

Formulas in Use in Connecticut.—

Tully's Powder (originally called *Tully's Dover's Powder*).—Sulphate of morphia one part, camphor in fine powder twenty parts, precipitated chalk twenty parts, powdered liquorice root twenty parts. This is the original formula of Dr. Tully, furnished by Mr. Wood, of New Haven.

Camphorated Dover's Powders.—Cream of tartar eight parts, powdered camphor two parts, powdered ipecac on part, powdered opium one part. Mix thoroughly and pass through a fine sieve. Originated by Dr. Eli Ives, of New Haven.

Potter's Powders.—Powdered prepared chalk six parts, powdered camphor one part, carbonate of ammonia in fine powder two parts. Furnished by Mr. Wood, of New Haven.

Soda Mixture.—Syrup of rhubarb (made from the root by infusion) four fluid-ounces, bicarbonate of soda one drachm, spirit of spearmint one half fluidrachm. Originated by Dr. Sumner, of Hartford. Furnished by Mr. Goodrich, of Hartford.

Knight's Pills.—Powdered aloes six parts, powdered scammony three parts, powdered gamboge one part. Make into four and one-half grain pills. Furnished by Mr. Wood, of New Haven.

Ox-gall Pills.—Purified ox-gall thirty-six grains, blue mass six grains, powdered rhubarb sufficient. Make into four and one-half grain pills. Originated with Dr. Jewett, in 1846. Furnished by Mr. Wood, of New Haven.

Pil. Hyoscyamus Comp.—Powdered colocynth six drachms, powdered socotrin aloes four drachms, extract hyoscyamus two drachms, extract conium two drachms. Make into two hundred and forty pills. Originated by Dr. Charles Hooker.

Mistura Conii, Ferri, etc.—Extract conium five drachms, carbonate iron ten drachms, tincture cinnamon compound two fluidounces, oil of cassia eighteen drops, oil of wintergreen twenty drops, tincture of tolu (two ounces in one pint) half a fluidounce, sugar eight ounces, water sufficient to make one pint. Originated by Prof. William Tully.—*Proc. Conn. Phar. Assoc.*, 1879.

Prof. Gross' Saline Mixture.—Having been repeatedly asked recently for the formula for this mixture, we publish it for the benefit of our readers :

R	Antimonii et potass. tart,	.	.	.	grs. iiss
	Magnesii sulph.,	.	.	.	℥ii
	Morphiæ sulph.,	.	.	.	gr. i½
	Aquæ dest.,	.	.	.	℥x
	Syr. zingiber. vel simplicis,	.	.	.	℥ii
	Acid. sulph. aromat.,	.	.	.	℥ss
	Tinct. veratr. virid.,	.	.	.	℥iiss

M. Sig.: Saline and antimonial mixture. Average dose, ℥ss, to be diminished in the event of vomiting or much nausea. (See "Gross' Surgery," 5th ed., vol I, p. 93)

The Mboundou Poison.—The following are the principal points of a recent memoir by M. Testut on the mboundou poison of Gaboon, Africa, as given in a notice in *La France Médicale* :

In the first place, the author found the action of the poison varies according to the way it was administered, and the dose. With small doses there were invariably observed convulsive symptoms, indicating increased reflex excitability. If given in large doses, the animal appeared as if struck down, respiration was arrested in a few seconds, and the frog became a passive mass, not even responding, in any way whatever, to excitations ; nevertheless, he is not dead ; the heart continues to beat with normal regularity.

M. Testut therefore suspects that there may be two principles in this famous ordeal poison—one exciting the reflex activities and the other stupefying and paralyzing them, this last acting only when large doses are given, and killing the animal before the convulsive phenomena have had time to appear. Whatever they or it may be, elimination takes place through the regular channels, and, in case of the frog, largely through the skin.

The abdominal lesions found after death from this poison are of a congestive nature, and similar to those found after poisoning from strychnia and agaricus. These lesions, not being due to a direct or topical action, must be attributed to the vaso-motor centres in the spinal cord, disordered in their functions by the absorption of the poison. The mechanism of death from this poison in the higher animals is, probably, asphyxia by respiratory arrest, a pulmonary anæmiasis.—*Journal of Nervous and Mental Disease*, April.

Spiritus Nucis Juglandis.—Dr. Edward Mackey, of Brighton, England (*Practitioner*, Dec.), gives the results of his experience in the treatment of obstinate vomiting, with spirit of walnut, a remedy almost obsolete, but for which he claims considerable efficacy as an anti emetic, useful in many cases of obstinate emesis. The preparation he uses he obtained from Messrs. Southall, of Birmingham, and is as follows : Fresh walnuts, 30 oz. ; spirit of wine (rect.), 12 oz. ; water q. s. Distil 16 oz. He has had good results from its use, in drachm doses, every one to four hours, in a little water, in cases of hysterical vomiting, the vomiting of obstinate dyspepsia, that of pregnancy, that due to anomalous causes, and even in cerebral vomiting. He has tried it also in septicæmia without effect ; but this result is not surprising. He recommends its more extensive trial by the medical profession.—*Jour. Nerv. and Ment. Disease*, April.

Suberin for Chapped Nipples.—(*L'Union Médicale du Canada*, January, 1879)
The treatment recommended by M. Brochard for fissured nipples is so simple that it deserves to be popularized. When chaps exist on the nipples, whatever their extent, the nipple should be washed with pure water, and then dried and dusted with suberin, which, as is known, is impalpable cork powder. The author has used it for several years, and prefers it to lycopodium for infants, because it contains

tannin, and besides is much cheaper. Over the suberin is placed a piece of gold-beater's skin, cut star-shaped, in the centre of which several punctures are made with a fine needle. Every time the child is suckled, the suberin is washed off with water and the gold-beater's skin replaced, the child drawing the milk through it without giving pain. When the child is done, the suberin is again applied as before, and so on.—*Chicago Med. Jour. and Examiner*, April.

Isinglass from Seaweeds.—A very interesting product, called "kanten," or vegetable isinglass—a species of gelose derived from either of the seaweeds *Gelidium corneum* or *Plocaria lichenoides*—is made in China and Japan, and exported to Europe in flat and moulded tablets and in bundles of strips. It is known in Cochin China as "hai thao." It is soluble in boiling water only, of which it takes up about 500 times its weight. It is manufactured as follows:

The seaweed, called by the native name of "tengusa," is carefully washed and afterwards boiled, so as to form a gluish decoction, which is strained off and put into square boxes. When cool it forms a stiff jelly, which can easily be divided into squares a foot in length. The manner in which the surplus water is removed is very ingenious. The jelly prisms are exposed in the open air during a cold night and allowed to freeze. During the day the sun melts the water, which runs off, leaving behind what one may term the skeleton of white horny substance, which is extremely light and easily dissolved in hot water; when cooled, it again forms a stiff jelly. This article can be applied to many purposes—for culinary uses, for making bonbons and jellies, for clarifying liquids, as a substitute for animal isinglass, for making moulds used by the plaster of Paris workers, for hardening the same materials—in short, as a substitute for all kinds of gelatins, over which it has the advantage of producing a firmer jelly.—*Confect. Jour.*, May.

American Fruit Syrups.—The production of syrups has heretofore been entirely in the hands of the French, who have held the control of the South American and West India trade, where syrups have been and still are largely used by ladies in the preparation of the various cooling drinks used in the tropical countries. The long time required to transport these goods to the tropics from Europe, and the superior advantages offering in the United States—not only with regard to the length of time for transporting the goods, but also from the natural advantages of the country—have induced some of our merchants to enter into competition with European markets for the production of fruit syrups which shall control the trade, not only of this country, but also that of the West Indies and South America.

The experiments have proved successful, by producing a better class of syrups, for the strawberry, raspberry and many other fruits are not only indigenous to the soil, and can therefore be produced cheaper, but they possess a far richer flavor, and are more juicy, giving them the advantage over the fruits which have to be cultivated by extraordinary efforts in countries to which they do not naturally belong. These syrups have been sent to the tropics as experimental ventures, and already

they have met with approval from the West Indies and from the Spanish islands, from which large orders have already been received. The trade in syrups in this hemisphere has heretofore amounted to millions of dollars, which amount has not only gone out of this country to foreign nations, but has also been taken away from the trade of the United States with those countries which by their near proximity would be supposed to have preferred commercial relations with North America than any other part of the world. The success of the experiment bids fair to bring to the United States a large trade, besides driving out of this market another of those foreign products, the control of the sale of which has heretofore been held abroad. —*Confect. Jour.*, May.

Manufacture of Celluloid.—Celluloid is made by dissolving pyroxylin in camphor instead of ether or alcohol. A solution of one part of camphor in 8 of alcohol is made; pyroxylin is ground in water, the desired colors added and all water removed from the mixture by pressure; the camphor solution is then added in the proportion of one part to two parts of pyroxylin, the mixture is stirred and allowed to stand in a closed vessel until the solvent has penetrated all parts, when the mass is expressed and formed into the desired shape by means of a hydraulic press, being heated at the same time from 65° to 130°C., when a solid, uniform piece of celluloid is obtained.

Artificial Ivory is made out of celluloid, as follows: 100 parts of pyroxylin, ground in water, and pressed almost dry, are mixed with 100 parts, by weight, of powdered ivory, and 50 parts of camphor, the moisture is removed from the mass by pressure, and 50 parts of nitric ether are added, when it is allowed to stand for several hours in a closed vessel. It is then compressed in a heated cylinder in a hydraulic press and rolled out between heated rollers, when it looks like ivory.—*Chem. Centralbl.*, Dec. 25, 1878, p. 831, from *Ind. Bl.*

Effect of Animal Charcoal on Salts.—The systematic researches of Leo Liebermann proved that not only many salts are retained by animal charcoal when their solutions are filtered through it, but that many are entirely decomposed by it. If a neutral solution of these salts is poured on a charcoal filter, the filtrate consists of an acid liquid, the whole base and a smaller or larger portion of the acid being retained by the charcoal. *Ztschr. f. Analyt. Chem.*, 1879, No. 1, p. 95, from *Sitzungsber. d. k. Akad. d. Wissensch. z. Wien*.

Bronzing Liquid.—Dissolve 10 parts fuchsin and 5 parts purple anilin in 100 parts 95 per cent. alcohol, on a water-bath; add 5 parts benzoic acid and boil for 5 to 10 minutes, until the greenish color of the mixture turns bronze-brown. This brilliant bronzing liquid is applied with a brush, answering well for all metals and for other materials, and drying quickly.—*Pharm. Centralk.*, Oct. 31, 1878, p. 416, from *Chem. Ztg.*

Artificial Cataplasm, a Substitute for ordinary Linseed Meal Poultice.—Volkhausen prepares cataplasms consisting of a piece of white thick felt paper, which is saturated with a decoction of linseed. When intended to be used the paper is dipped into hot water; swells considerably, is then applied, covered with caoutchouc paper, fastened with bandages or string, and allowed to remain for 12 hours before a new one needs to be applied.—*Pharm. Zig.*, Feb. 12, 1879, p. 95.

MINUTES OF THE PHARMACEUTICAL MEETING.

MAY 20, 1879.

On motion, Mr. Wm. McIntyre was called to the chair. The minutes of the last meeting having been read, were approved.

Prof. Maisch presented a number of valuable books, twenty in all, from the library of the late Prof. Carson, and many specimens of materia medica for the cabinet. They were sent by Dr. W. S. W. Ruschenberger, President of the Academy of Natural Sciences, as he was apprised of the wish of Dr. Carson that our College should be the recipient of a portion of his cabinet and library. The Registrar was directed to return the thanks of the College to Dr. Ruschenberger for his thoughtful kindness in forwarding the above articles.

Prof. Maisch exhibited a specimen of a root and plant sent by Mr. Atherdon, of Colusa, Cal., as being probably a species of *angelica*. The plant belongs to the umbelliferæ, but the genus cannot be determined, owing to the immature condition of the ovary. Prof. Maisch has planted one of the roots, and expects to receive the fruit to enable him to determine its botanical name. He also presented some fresh rhizomes of *Maranta arundinacea* (the arrowroot plant), for which he was indebted to Prof. Bedford, of New York. A specimen of the *Raiz de China de Mexico*, sent by Mr. Kalteyer, of San Antonio, Texas, was exhibited. It is officinal in the Mexican Pharmacopœia and there referred to *Smilax rotundifolia*; but Prof. Maisch stated that this species is indigenous in the United States and has a cylindrical rhizome, so that the above reference is erroneous. The root is spindle-shaped, about 18 inches long, 6 or 7 in diameter above, of a reddish brown color externally, lighter within, fleshy, and with numerous irregular striæ of wood bundles; it is nearly inodorous when dry, of a rather fruity odor when first cut open, and of a very astringent and somewhat bitter taste. Diaphoretic and purifying properties are attributed to it, and it is also employed in dropsy.

Prof. Maisch likewise presented, in behalf of Dr. F. V. Greene, U. S. N., a specimen of *chloride of ammonium* derived from the interior of a Peruvian guano bed. It has the appearance of being sublimed, is hard, fibrous, crystalline and of a dark-gray color.

The following short communication from Mr. Hans M. Wilder was read:

Filters.—Convenient as the French round filters of different sizes are, it will be found more economical to keep the 20-inch size, and cut up into smaller sizes. One hundred 20-inch filters yield

400 8 and 500 3 inah.
or, 2600 3 inch.
3600 2½ inch.
700 6 inch.
200 10, 200 6 and 400 3 inch.
100 13 and 600 3 (or, 200 3 and 200 4 inch).
100 10, 200 8, 100 6 and 200 3 inch,

And so on.

The above has been found not by calculation but by actual measurement. The savings will run up from 30 cents to 70 cents or more. Small as the savings are, filters are used to such an extent that the savings amount to something in a twelve-month.

Prof. Maisch called attention to a number of specimens of Bombay drugs recently received from Mr. W. Dymock, and exhibited a number of those which are to some extent known in this country or have recently been mentioned in pharmaceutical journals.

Prof. Sadtler alluded to *abietene*, and read an extract from a paper by Prof. Thorpe, of Leeds, Eng. (see page 293), showing the singular identity of abietene with heptane, one of the derivatives of paraffin from Pennsylvania petroleum.

There being no further business, on motion, the meeting adjourned till October.

T. S. WIEGAND, *Registrar.*

PHARMACEUTICAL COLLEGES AND ASSOCIATIONS.

New York College of Pharmacy.—The semi-centennial anniversary of the organization of this College was celebrated at the College building, 209 East Twenty-third street, on the evening of May 15th. The spacious lower room was occupied by a collection of articles relating to pharmacy of the present time and of the past, and consisting of apparatus, utensils, preparations, and notably of books, amongst which were several ancient ones printed in hieroglyphics which we could not decipher. The large lecture room was tastefully decorated, and on one side were the names of all the presidents, on the other side those of all the professors of the College since its organization. The seats on the platform were occupied by the original and several of the older members of the College. On the suggestion of President E. McIntyre, Mr. Henry T. Kiersted was invited to preside and Mr. G. D. Coggeshall to act as secretary, both gentlemen having belonged to the College since its organization. Professors Chandler and Day, who had been invited to address the meeting, were unavoidably absent. Professor Bedford gave a historical sketch of the organization of the College and its labors, and introduced also interesting notices of the first apothecary in New York, H. Kiersted, and of many of the long-established drug houses in that city. Prof. Maisch, of Philadelphia, being called upon, made a few remarks, alluding more especially to the services of the New York College in securing the passage of the drug inspection law, and of calling the Convention of Colleges, from which resulted the American Pharmaceutical Association. This was the second College of Pharmacy in the United States having witnessed the first fiftieth anniversary. May the others in the course of time follow, and may they all

remain united in the objects for which they have been established : the elevation of pharmacy and the sound and thorough education of the tyros.

New York State Pharmaceutical Association.—This is the title of a new organization, which was organized at Utica, May 21st. Pursuant to a call, signed by a large number of druggists from different parts of the State, nearly one hundred assembled on the day mentioned in the Common Council Chamber. Professor Bedford was elected temporary chairman, and Mr. Clay W. Holmes, secretary. Addresses of welcome were made by Judge Bacon and Dr. M. M. Bagg. Congratulatory telegrams were received from the Pharmaceutical Associations of New Jersey and Kentucky, then in session. The draft of a constitution and by-laws was presented, discussed and adopted, after which the following officers and committees were elected :

President, Prof. P. W. Bedford, New York ; Vice-Presidents, C. M. Lyman, Buffalo ; Benjamin F. Ray, Utica ; A. J. Inloes, Binghamton ; Secretary, Charles H. Gaus, Albany ; Assistant Secretary, Clay W. Holmes, Elmira ; Treasurer, William Blaikie, Utica ; Executive Committee—Louis E. Nicol, Brooklyn ; A. B. Husted, Albany ; E. H. Davis, Rochester ; Delegates to American Pharmaceutical Association—F. F. Knapp, New York ; W. H. Rogers, Middletown ; C. M. Lyman, Buffalo ; William Blaikie, Utica ; H. P. Napier, Owego.

On the following day the President explained the advantages of, and illustrated the metric system of weights and measures. Mr. E. G. Bissell read a paper on syrup of ipecacuanha. The following committees were appointed : On Pharmacy Law (to draft a law and present it to the Legislature)—Mr. Rieffenstahl of Buffalo ; B. F. Ray, Utica ; H. B. Napier, Owego ; G. M. Baker, Brooklyn ; Willett L. Brown, Syracuse. On Trade Interests—Messrs. Inloes of Binghamton, Diehl of Buffalo, Bissell of Rome. On Pharmacy and Queries, Messrs. Sautter of Albany, De Forrest of Brooklyn, Hamilton of Syracuse.

Connected with the meeting was an exhibition of drugs and articles of interest to pharmacists. Between the sessions a visit was paid to the State Lunatic Asylum, where the various departments were shown by Drs. Andrews and Brush. After passing sundry resolutions of thanks, the Association adjourned to meet again at Syracuse in May, 1880. A number of the members subsequently paid a visit to Trenton Falls.

Pennsylvania Pharmaceutical Association.—The second annual meeting of this Association will be held in the Select Council Chamber at Pittsburg June 10th, at 10 o'clock A.M. By referring to page 11 of the advertising sheet, our readers will notice the particulars of the arrangements which have been made by the Secretary and by the Local Committee. The enjoyment of the trip will be materially enhanced if the Eastern members, with their ladies, will join the party which will leave Philadelphia about noon and Harrisburg at 3.35 P.M. on June 9th. It is expected that a number of the members will embrace the opportunity and pay a visit to the oil regions.

Pittsburg College of Pharmacy.—The chair of Chemistry, made vacant by the

resignation of Prof. F. F. Phillips, has been filled by the Board of Trustees by the election of Mr. Henry G. Debrunner. The newly-elected professor is known to the readers of our journal from several contributions which have appeared in its pages from his pen, and, knowing him to be active and energetic, we are convinced that he will use his best efforts to fill the position with credit to himself and to the institution. The chairs of *Materia Medica* and of *Pharmacy* are occupied by the incumbents of last year, Drs. Reiter and Stevens.

Maryland College of Pharmacy.—At the Annual Commencement, held March 24th, the President, Dr. Joseph Roberts, conferred the degree of Graduate in Pharmacy upon Charles E. Bardwell (*Oleum Morrhuæ*), D. M. R. Culbreth (*Sodium and its Compounds*), Henry M. Fout (*The Plant*), Justin L. Hill (*Caloric*), O. Edward Janney (*Metric System in Pharmacy*), Wm. H. Koons (*Water*), V. Paul Lombard (*Ferruginous Substances*), Thos. E. Locke (*Hemp of India*), Geo. Mass (*Sarsaparilla*), J. R. Mehrteus (*Ergot*), F. R. Nordmann (*Ammonia and its Compounds*), C. W. Routson (*Chimaphila Umbellata*), Thos. S. Russell (*Radix Aconiti*), Geo. H. Schone (*Polytrichum Juniperinum*), Wm. A. Stewart (*Logwood*), Geo. W. Sutton (*Sulphur*), Chas. Waldschmidt (*Lactic Acid*), Chas. L. Weiher (*Campbor*), Adolph Weilepp (*Carbon*), John B. Willis (*Mesquite*), Henry Weinsenger (*Potash*), Louis Wolf (*Potassium*).

Alumni Association, Louisville College of Pharmacy.—At the fifth annual meeting the following officers were elected for the ensuing year: President, B. Buckle, M. D.; Vice Presidents, W. F. Tafel and A. J. Schoettlin; Recording Secretary, O. E. Mueller; Corresponding Secretary, Arthur J. Elwang; Treasurer, Henry Buschemeyer, Jr. Executive Board—Jno. Rudell, O. A. Beckmann, J. A. Flexuer, Geo. Stauber and J. C. Loomis. Delegates to the American Pharmaceutical Association—Otto E. Mueller, John F. Rudell and Oscar A. Beckman.

St. Louis College of Pharmacy.—At the commencement exercises, held Tuesday evening, March 19, 1879, at Apollo Hall, the degree of Ph.G. was conferred upon the following gentlemen: J. F. Baehr, J. H. Evans, Otto Fehringer, H. F. Hassebrock, E. Knoebel, G. J. Klein, Wm. F. Krems, F. J. Meyer, H. T. Moeller, E. H. Mueller, J. Ramming, J. A. W. Sommer, C. C. Tate, E. M. Till, J. P. Schoenthaler, E. H. Wolff. The valedictory address, on behalf of the faculty, was delivered by Prof. J. M. Good, Ph.G.; on behalf of the class, by Mr. E. M. Till, Ph.G. The exercises were followed by a social reunion.

The annual meeting of the college took place on Monday, April 28th, 4 P. M., at the lecture room. The different committees presented their reports, showing the institution to be in a flourishing condition. The election of officers for the ensuing year resulted as follows: President, Geo. Ude; Vice President, Chas. Gietner; Recording Secretary, E. P. Walsh; Corresponding Secretary, G. H. Chas. Klie; Treasurer, Ferd. W. Sennewald; Trustees—Chas. Habicht, Chas. Bang, W. H. Crawford, Henry Braun, Gustav Koch. Professors: Chemistry, C. O. Curtman, M. D.; Pharmacy, J. M. Good, Ph.G.; *Materia Medica*, O. A. Wall, M. D.; Botany, Ph. Hambach, M. D.

EDITORIAL DEPARTMENT.

The Revision of the United States Pharmacopœia.—On page 268 of our last number we have published the call for the sixth decennial Pharmacopœia convention, which is to meet in the city of Washington on the first Wednesday in May, 1880. The call is signed by Dr. James E. Morgan, whose name is erroneously given James M. Morgan in the Proceedings of the National Convention of 1870, as published in the last edition of the Pharmacopœia. Dr. Morgan is the only survivor of the five officers of the convention who were charged with the duty of calling the sixth convention. In accordance with the resolutions passed in 1870, the notice is specially addressed to the incorporated State medical societies, the incorporated medical colleges, colleges of physicians and surgeons and colleges of pharmacy throughout the United States, all of which are requested to elect delegates, not exceeding three, to the next general convention, and in the meantime to submit the Pharmacopœia to a careful revision, the result of their labors to be transmitted to the convention.

It is particularly to this last clause that we desire to call the attention of our readers. It is well known that it is much easier to find fault with a work done by others than to do that same work in a better manner, and it is not unfrequently the case that most fault is found by those who have made the least efforts towards improving that which it is desired to revise. Since the Pharmacopœia is more especially the law-book of the pharmacist and his guide in making those preparations which the physician is expected to use in the treatment of disease, a duty evidently rests upon every pharmacist to contribute his share towards making the Pharmacopœia as perfect as possible. The discussion of processes, manipulations and menstrua at meetings and in the journals is all very proper; but, with the view of lending efficient aid in the revision, the results, and not the theories merely, should be brought to the notice of the convention in such a manner as to make them at once available for the purpose for which they are intended. Or, in other words, alterations and new material should be presented precisely as they are intended to appear in the Pharmacopœia, and any argumentation in favor of or against a process or measure should be to the point and as brief as consistent with clearness. All references to published papers or the expressed opinions of men can obviously be best available if put into the language of the Pharmacopœia. It is doubtless for such and similar reasons that the different societies are requested to submit the Pharmacopœia to a *careful revision*. The comparison of the results will then be relative'y an easy task, and if a sufficient majority of the reports should favor any particular preparation or process, its adoption would obviously be secured.

Have all the colleges of pharmacy applied themselves to the work expected of them? We are unable to say to what extent this has been done; but in case the preliminary labors required should have not, or only partially, been attended to, we would urge upon each college the necessity of commencing the work forthwith, and, rather than to leave it undone altogether, to revise as large a portion of the Pharmacopœia as can be done by them during the few months left before the meeting of the convention.

When the convention of 1870 met, we believe that there was no pharmaceutical State association in existence. During the last ten years fifteen have been organized, nearly all of which, we believe, are actively sustained. They are likely to furnish a new element, at least in future revisions of the Pharmacopœia, representing that large number of pharmacists who live in smaller cities and towns where they cannot be in active communication with the colleges. Their wishes require to be heard, like those of the State medical societies. We have not learned that any of these State associations have undertaken the preliminary revision of the Pharmacopœia, perhaps because, under the rules adopted in 1870, no provision could be made for the reception of their delegates. But, we doubt not, the result of their labor would receive the same consideration as if they were represented by delegations. Notwithstanding the difficulties in the way of unity of action when working members of a committee live at great distances from one another, the American Pharmaceutical Association, which is likewise not entitled to representation in the Pharmacopœia convention, has undertaken the work, and we feel confident that, notwithstanding the great difficulties, it will be accomplished, under its efficient chairman, in such a complete manner as can be reasonably expected.

For State associations the difficulties are by far less, and though it may be too late for most of them to carry a preliminary revision successfully through, the individual members could attend at least to a portion of the work, and thus pave the way for the future. Or if that should be impracticable, they would work for the interest of pharmacy if they would communicate their suggestions, in the concise manner indicated above, to the Chairman of the Committee of the American Pharmaceutical Association, Mr. Chas. Rice, Bellevue Hospital, New York, or to the nearest College of Pharmacy. In a country as extended as the United States it is impossible for the few to be cognizant of the wants of every section, and it rests with the pharmacists and physicians of those sections to make their wants felt; more particularly is this the case with the Southern and far Western States, where many remedies are applied which are unknown in the Eastern and Middle States. In our opinion, no pharmacist is justified in finding fault with the new Pharmacopœia, if he has not assisted in the work of revision to the best of his ability and opportunity.

State Pharmaceutical Associations.—It is with great pleasure that we announce in the present issue the organization of a pharmaceutical society for the State of New York. In addition to this, the youngest, there are now similar organizations in most of the New England States, in New Jersey, Pennsylvania, South Carolina, Georgia, Mississippi, Kentucky, Tennessee, Michigan, Kansas and California. In September next the National Association will meet at Indianapolis, in a section of the country which was formerly designated the West, but has at the present time, perhaps, greater claim to be called the centre of the United States. The States located in this portion are surrounded by those in which the pharmacists and druggists have awakened to the necessity of organizing themselves for mutual advancement and protection. We are convinced that it requires only an invitation from a

comparatively few to enlist the co-operation of the majority of reputable druggists in the organization of a State society. It is to these few that we desire to address ourselves, and to urge upon them now, as we have done on former occasions, to proceed. It is a mistake, in our opinion, to wait until steps in this direction are taken by the pharmacists in the large cities, who have either a college or a local association to unite them. We believe that the initiatory steps are best taken by those not connected with local bodies; for the great object to be attained is to bring those nearer to one another who at present are strangers, and to unite them in the work of mutual improvement. We therefore repeat the suggestion which we made two years ago, for the druggists and pharmacists of the different State capitals, to call a meeting of all interested at an early date. Pharmacists who live in other towns and feel an interest in the movement, should, however, not allow the object to be defeated through any lukewarmness that may exist in the capital, but, with the aid of their friends, set the undertaking in motion. We are aware that for some years past the organization of pharmaceutical associations has been contemplated in Iowa, Indiana and Ohio; there is no reason why it should not be accomplished now, so that the newly formed associations may be represented at the twenty-seventh annual meeting of the American Pharmaceutical Association. And in case any of the older State associations should have failed to keep up their regular meetings, it is to be hoped that new life may be infused into them for the same cause.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Proceedings of the American Pharmaceutical Association at its twenty-sixth annual meeting, held at Atlanta, Ga., November, 1878. Philadelphia. 1879. 8vo.

As we go to press we learn that this anxiously expected volume is nearly ready, and will be distributed to those entitled in June. It makes the largest volume ever issued by the Association, covering over 1,000 pages. The report on the Progress of Pharmacy is unusually full and elaborate, and occupies 644 pages. Then follow the reports of the Committee on the Drug Market and of other committees, including that on the Revision of the Pharmacopœia, which is accompanied by a valuable report on Fluid Extracts by Prof. Diehl, giving the experimental results of a number of investigators, obtained by following a uniform previously-devised plan. The elaborate paper on Repercolation by Dr. Squibb, published on page 209 of our last volume, is reproduced, and completed by giving the results obtained from long experience in the preparation of fluid extracts by repercolation.

The papers presented at the last meeting are published in full; in the December number abstracts have been given of those papers which admit of condensation. As usual, the minutes contain the discussion, reported by a stenographer, and are followed by the roll and an alphabetical list of members with their addresses, the usual lists and an index, which is necessarily more lengthy than those of the previous volumes. The character of the majority of the papers, and the fulness of the

various reports, render this one of the most valuable and important ones published by the Association. Non-members will be supplied with copies, bound, at \$7.50 each, by the permanent Secretary, J. M. Maisch.

Cinchona. Arten, Hybriden und Cultur der Chininbäume. Von Dr. Otto Kuntze. Leipzig. Verlag von H. Haessel. 1878. 8vo, pp. 124, and three phototypes.

Cinchona. Species, hybrids and culture of the quinine-trees.

It is well known that the different species of cinchona, as they are usually enumerated in works on Botany and on Materia Medica, present so many variations of the botanical characters that it is exceedingly difficult to exactly define the limits of these species, all of which appear to be more or less connected by intermediate forms. It is also known that when under cultivation hybrids are very easily produced. The author had occasion to make observations at the cinchona plantations of Java and the Himalayas, and, comparing them with those made by the directors and superintendents of the plantations, arrives at the conclusion that the number of species of cinchona must be very materially reduced, and that nearly all the species as hitherto recognized should be regarded as hybrids. This view is strengthened after a critical examination of the works of Ruiz and Pavon, Lambert, Weddell and others, the author pointing out in each case the typical forms, by the hybridization of which the supposed species have been produced. The species are reduced to four, for which the following nomenclature is proposed:

1. *Cinchona Weddelliana*. This agrees with *C. calisaya* of Weddell in part; five varieties, differing somewhat in the shape and venation of the leaves, are described.
2. *C. Pavoniana* is *C. micrantha*, Weddell.
3. *C. Howardiana* is *C. succirubra*, Pavon.
4. *C. Pabudiana*, Howard.

The phototypes give representations of these four species with fruit, of a form produced by the hybridization of all four species, and of numerous leaves from *C. officinalis*, Lin. (s. *C. condaminea*, Humb.)=*C. Pavoniani-Weddelliana*, Kuntze, showing the gradual approaching to the leaf forms of the two parent species.

The work is certainly a most interesting addition to the literature of the cinchonas; and while it must be conceded that the views advanced by the author are calculated to throw light on certain obscure questions relating to the cinchonas, it is equally certain that the reduction of species as proposed must be left for final decision to future careful investigations.

Medicinal Plants; being descriptions with original figures of the principal plants employed in medicine, and an account of their properties and uses. By Robert Bentley, F.L.S., and Henry Triemen, M.B., F.L.S. Philadelphia: Lindsay & Blakiston. Price, per part, \$2.00.

This handsome work, we are glad to notice, is approaching completion. Parts 37 and 38 before us contain colored figures in the usual excellent style, and descriptions, etc., of the following plants: *Æthusa cynapium*, Lin.; *Cinnamomum cassia*, Blume; *Crocus sativus*, Lin.; *Humulus lupulus*, Lin.; *Lycopodium clavatum*, Lin.; *Peu-*

cedanum graveolens, *Hiern* (dill); *Pimpinella anisum*, *Lin*; *Pinus picea*, *DuRoi*; *Pinus pinaster*, *Solander*; *Rosa canina*, *Lin*; *Smilax medica*, *Schlecht*; *Smilax officinalis*, *Kunth*, and *Spigelia marilandica*, *Lin*.

A Guide to Therapeutics and Materia Medica. By Robert Farquharson, M.D. Edin. Second American edition, revised by the author. Enlarged and adapted to the U. S. Pharmacopœia by Frank Woodbury, M.D., Physician to the German Hospital, Philadelphia. Philadelphia: Henry C. Lea. 1879. Pp. 498.

The appearance of a new edition of this convenient and handy book in less than two years may certainly be taken as an indication of its usefulness. Its convenient arrangement and the terseness, and, at the same time, completeness of the information given, make it a handy book of reference.

In looking over its pages, we have noticed that *Pareira brava* (p. 336) is still referred to *Cissampelos pareira*, while it is obtained from *Chondodendron tomentosum*, *Ruiz et Pavon*, as proven by Daniel Hanbury in 1873. On page 134 it is said of *Angustura bark*, that "it has fallen into disrepute from the fact that it was occasionally found to be adulterated with *nux vomica bark*." This sweeping statement is not in accordance with the facts. The adulteration was noticed in 1804 in *angustura bark* sold at and obtained from Hamburg; but the place where the admixture was made has not been ascertained. The adulterant was at first supposed to be the bark of *Brucea antidysenterica*, *Mill.*, and on this account the alkaloid obtained from it by Pelletier and Caventou was named *brucia*. The correct origin of the so-called false *angustura bark* was determined by Schleiden in 1857; but for the last seventy-five years no other case of this adulteration has been placed on record.

Hints in the Obstetric Procedure. By William B. Atkinson, A.M., M.D. Philadelphia: D. G. Brinton. 1879. 12mo, pp. 121.

This formed the subject of an annual address delivered before the Philadelphia County Medical Society, and has been re-written by the author in response to demands made for it. The book before us is of the second edition.

Hearing and How to Keep it. By Chas. H. Burnett, M.D., Consulting Aurist to the Pennsylvania Institution for the Deaf and Dumb, etc. Philadelphia: Lindsay & Blakiston. 1879. 16mo, pp. 152. Price, 50 cts.

This is the first of a series of small volumes which will be edited by Dr. W. W. Keen, and issued by the publishers under the general title of *American Health Primers*. The subjects selected pertain to sanitary science and to the preservation of health. A number of well-known American authors have promised their assistance, and several additional volumes are now in press.

The little volume before us appears in a very inviting dress, and as to its contents, they have evidently been written by a skilled hand and in such a manner that they will be interesting as well as useful to persons of intelligence generally. As the forerunner to the series, it will create an interest in those which are to follow.

Rhymes of Science; wise and otherwise. New York: Industrial Publication Company, 1879. pp. 66. Price 50 cents.

These "rhymes" embrace selections from the poems of Bret Harte, Oliver W. Holmes, R. Barham, Prof. E. Forbes and others. It is a neat, illustrated little volume, calculated to amuse and instruct.

Taschenbuch der Chemikalien-Lehre. Von Dr. G. C. Wittstein. Nördlingen: C. H. Beck'sche Buchhandlung, 1879. 12mo, pp. 326.

Compendium of chemicals.

The volume before us is the third of a series of popular works giving information on various subjects used in the arts or for domestic purposes. The author's "compendium of secret medicines" we have noticed in 1876; his "compendium of articles of food and drink" in our last volume. The aim which guided the author in the two volumes mentioned has also been adhered to in the present one. It has been written as a guide for intelligent persons generally, and though it does not enter into the discussion of chemical problems, will be found useful and convenient also for those versed in chemistry.

The articles are arranged in alphabetical order, and usually treated of under the sub headings: Occurrence in Nature, Preparation, Composition and Properties, Impurities, Uses. The descriptions are clear and to the point, and all statements are made with that accuracy for which the author is noted.

Proceedings of the Connecticut Pharmaceutical Association at the third annual meeting, held in Hartford, Conn, Feb. 5, 1879. Waterbury. 8vo, pp. 71.

This pamphlet contains the minutes, addresses, reports, papers read, etc., at the meeting. Among the reports is one on local formulas, the collection of which we consider a very commendable undertaking by the various State Pharmaceutical Associations, in many cases not so much on account of the intrinsic value of these medicines, but more for the purpose of securing uniformity in the prescribing and dispensing of medicines throughout the country. We print these formulas in another place (see page 322). The report on the progress of pharmacy by Mr. Thos. F. Main covers twenty-three pages, and very properly confines itself almost exclusively to pharmaceutical formulas published in the American journals. We are aware that several Pharmaceutical Associations have adopted a similar course; but we seriously doubt the propriety of it, inasmuch as a *complete* report on the subject can by no means be expected, such as is furnished by the American Pharmaceutical Association in its annual publications, and which covers all branches of pharmacy and includes the periodical literature of most civilized countries.

Among the papers read we desire to especially refer to a few. One on proprietary medicines, by E. W. Thompson, refers to the moral side of the question in a commendable manner, and in discussing the financial side severely handles the "cutting" of prices. We believe the position of the author to be correct when he

says, "If it were my fortune (or misfortune) to be obliged to meet the competition of one of these would-be druggists, instead of following his lead in reducing prices, I should at once offer patent medicines at the bare cost of laying them down in my store, and trust to my reputation to carry me through on my preparations; I certainly believe that any pharmacist possessing a good reputation could keep his trade by this means. In large cities I can only suggest a combination which should embrace, if possible, all the skilled pharmacists in the place," etc.

The manufacture and sale of pharmaceutical preparations by wholesale druggists and others is discussed by Nathan Dikeman. We extract only the following, which we think will be endorsed by all true pharmacists: "So long as the physician calls for these various special manufactures, to the exclusion of the regular officinal remedies, they might as well be kept in corner groceries, and sold like rum, sugar and molasses, and requires about the same amount of talent and responsibility to dispense them. It seems to me to savor very strongly of quackery, and is a step toward prescribing patent or proprietary medicines; and in the opinion of the writer all reputable pharmacists should discountenance their adoption, and depend upon their own skill and knowledge to provide the necessary pharmaceutical and officinal preparations, as far as is possible, and not upon the skill and integrity of others."

Proceedings of the Tenth Annual Meeting of the California Pharmaceutical Society and College of Pharmacy, held at San Francisco, January 9, 1879. 8vo, pp. 42.

Besides the matters usually contained in such publications, two papers are published in this pamphlet, one by Prof. W. M. Searby on *Pills and pill excipients*, and one by S. A. McDonnell, giving the results of the qualitative examination of a San Francisco *Cure of opium habit*, which contained codeia, sugar, glycerin and anilin red.

Fifteenth Annual Report of the Alumni Association of the Philadelphia College of Pharmacy, 1879. 8vo, pp. 56.

Eighth Annual Report of the Alumni Association of the College of Pharmacy of the City of New York, 1879. 8vo, pp. 64.

These publications contain the minutes, addresses, reports, commencement exercises, etc.

A Contribution to the Hæmatinic Properties of Dialyzed Iron. By Robert Amory, M. D., of Longwood, Mass., 1879. 8vo, pp. 7, with five plates, handsomely executed by the heliotype process.

This is a reprint from the Boston "Medical and Surgical Journal" of April 3d, in which the author reports five cases of anæmia successfully treated with dialyzed iron. These cases are more particularly interesting, since recently dialyzed iron has been often reported as worthless. The question of superiority over other iron preparations is quite a different one; perhaps the mode of administration, etc., may have a decided influence on its effects, as on those of other medicines.